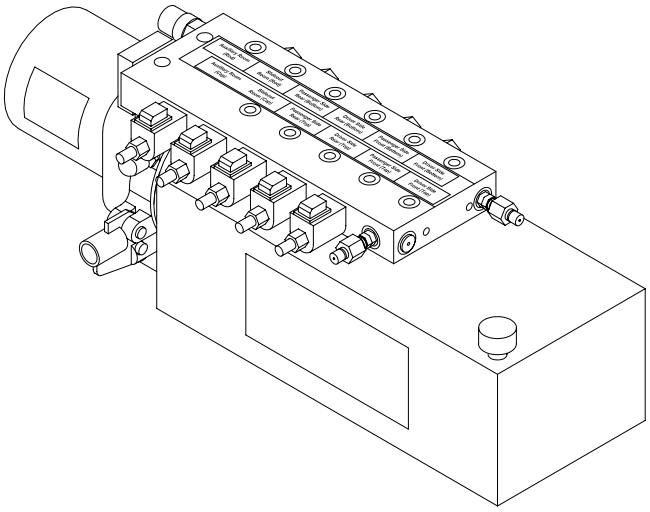
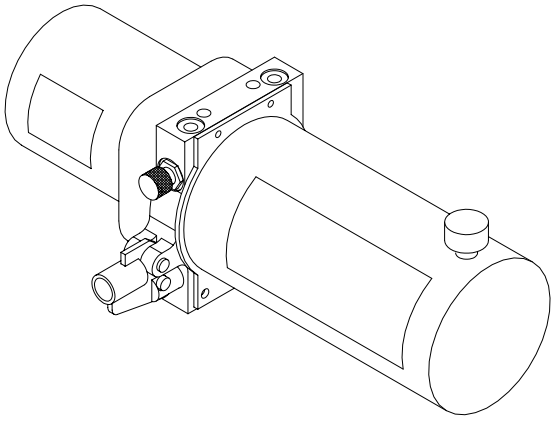
PARTS AND SERVICE MANUAL
for
DEWALD HYDRAULIC SLIDE OUT SYSTEMS



Typical Dewald leveling and slide out pump assembly



Typical Dewald slide out pump assembly

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WARNING

- **The hydraulic slide-out system is designed as a slide-out system *only*. Do not use the Dewald hydraulic slide-out system for any other reason or function.**

- **The use of the power gear hydraulic slide-out system to perform any other function could result in damage to the coach and/or cause serious injury or even death.**

CAUTION - Check that potential parking locations are clear of obstructions before operation.

CAUTION - Keep people clear of coach while operating the slide-out system.

CAUTION - Never expose hands or other parts of the body near hydraulic leaks. High-pressure oil leaks may cut and penetrate the skin causing serious injury.

CAUTION - Park the coach on a reasonably solid and level surface to optimize the slide-out system function.

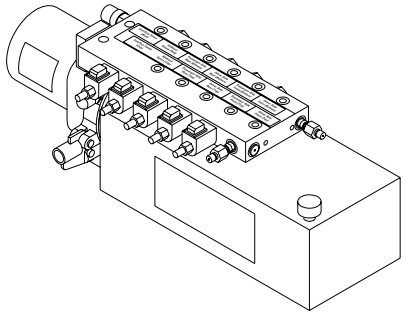
Read, study, and understand the *Operations manual for Dewald slide out systems* before operating the slideout system.

SYSTEM DESCRIPTION

Power Gear manufactures two different styles of the Dewald electro-hydraulic pump assemblies, the leveling and slide out assembly and the slide only pump assembly. There are different varieties of these styles that will be discussed in greater detail in the instructions for using the slide out.

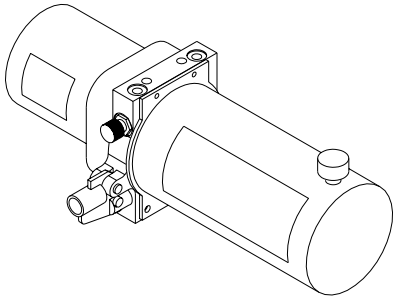
Leveling and slide out pump assembly:

This pump assembly is found on motorized RV's and can actuate four leveling jacks and up to 3 slide out rooms. It can also be used to actuate 4 slide rooms, only.

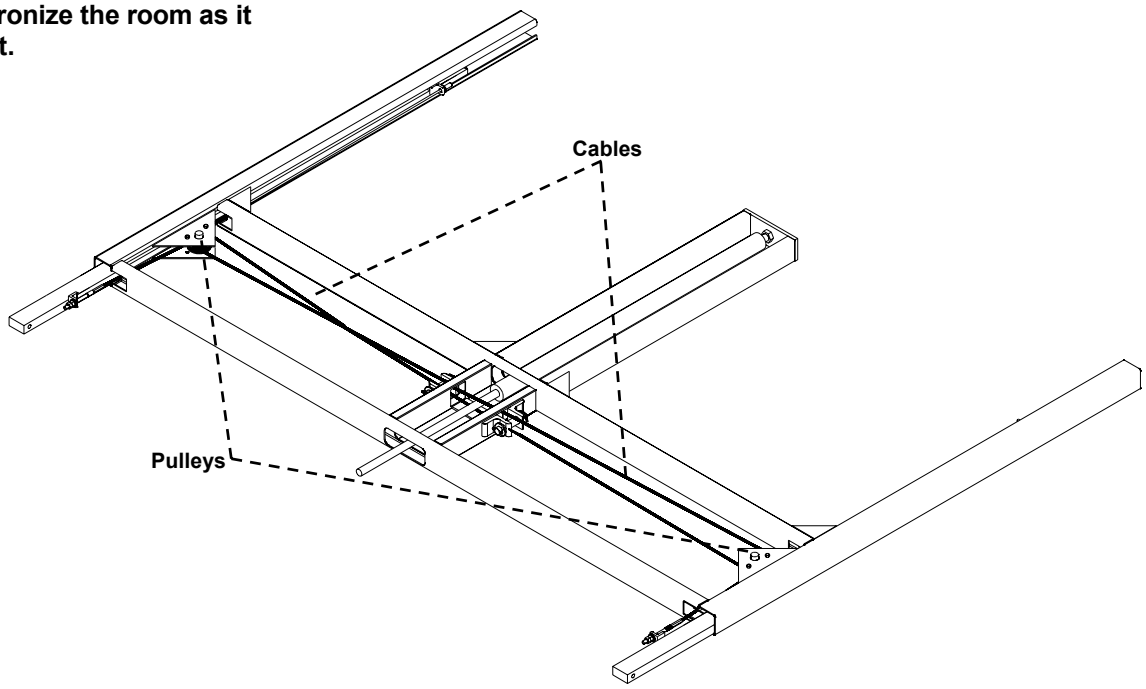


Slide out pump assembly:

This pump assembly is generaly found in towable campers but may also be used on motorized RVs. It can actuate up to 3 slide out rooms.

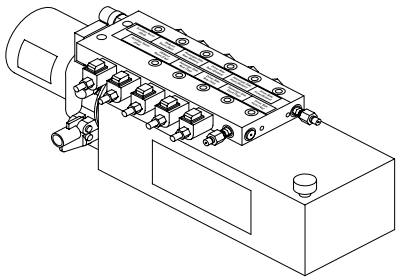


Each slide room utilizes a cable and pulley system to synchronize the room as it travels in and out.



Pictures are shown as reference only. Your system and its components may differ slightly from these pictures.

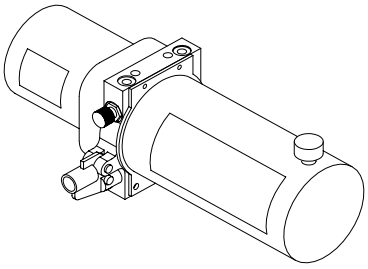
Leveling and slide out pump assembly



Leveling + slide room(s) pump assembly

This pump assembly is found on motorized RV's and can actuate four leveling jacks and up to 3 slide out rooms from the same pump assembly. Each slide room is actuated from it's own switch inside the coach.

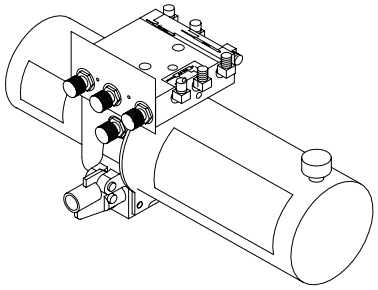
Slide out only pump assemblies



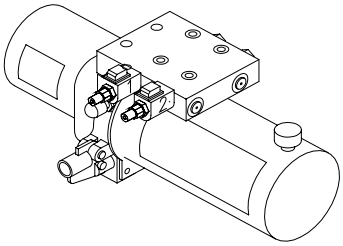
BL 3 & 4 qt. assembly

The BL pump assembly can actuate up to 3 slide out rooms. Two hoses come from the ports in the top of the pump assembly and are attached to a hydraulic cylinder mounted underneath the slide room. On units with 2 or three rooms, the two hoses from the pump "T" off and then are attached to the cylinders. One switch is used to extend and retract all rooms. Most units have two switches for extending and retracting the room(s), one at the pump and one in the vehicle.

The selector manifold on the BL assembly allows for individual extension and retraction of the slide rooms. The manifold assembly on top of the pump has shut off valves for each room. When shut off, the valves stop the flow of hydraulic fluid to the slide out cylinder. Turning the shut off valves clockwise will prevent the room from being extended. Activation of pump assembly is from one switch. Most units have two switches for extending and retracting the room(s), one at the pump and one up in the vehicle.



BL 3 & 4 qt w/ selector manifold



Pump assy. w/ ESV (Electric Solenoid Valve)

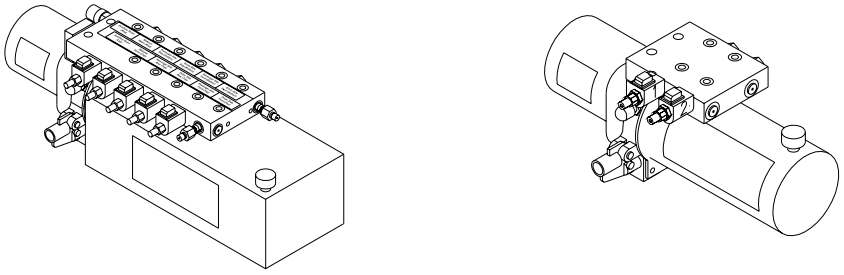
The ESV pump assembly gives you individual, electrical control over the slide rooms. The system utilizes a mechanical valve controlled by a 12VDC coil for each slide out room actuated by the pump. Each room is extended and retracted by it's own switch, located inside the coach.

Pictures are shown as reference only. Your system and its components may differ slightly from these pictures.

MANUAL RETRACTION PROCEDURE

Note: *Please read the entire manual before operating this system.*

VEHICLES WITH LEVELING + SLIDE ROOMS OR ESV PUMP ASSEMBLIES (Fig 6)



Your Dewald Hydraulic Power System has been designed to operate both the leveling and/or slide out system from one power source. This power unit has a built-in hand pump for manually retracting the jacks and slide out room(s) if complete power should be lost to your leveling system.

Hand Pump Operation

1. **Turn each of the small slotted setscrews (A) on the front of the pump assembly clockwise until they stop. This will hold the valves open.**
   Note: **Vehicles that pre-date 2001 may have a red knurled knob on the end of each valve (A). Instead of turning a setscrew as instructed, you simply pull out the red knobs and turn them a ¼ turn in either direction. When you release them, they will stay locked in the "out" position.**
2. **Turn the silver (larger) knurled knob (B) on the front of the power unit 2 turns counter-clockwise.**
3. **Insert the pump handle into the receptacle (C) and pump the hand pump.**
4. **When all the jacks and/or the slide out room(s) are fully retracted, tightly close the silver knurled knob clockwise.**
5. **Turn each of the small slotted setscrews counter-clockwise, until snug.**
   Note: **If equipped with red knobs (A), turn them a ¼ turn to pop them back into normal operating position.**

Figure 6

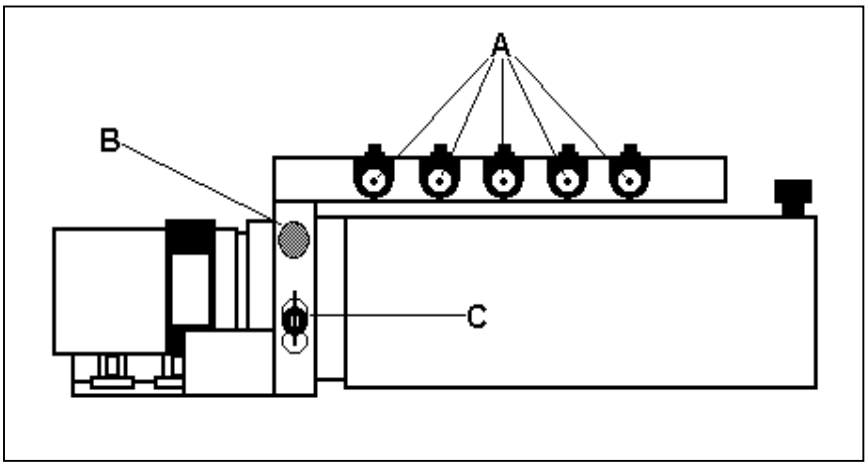
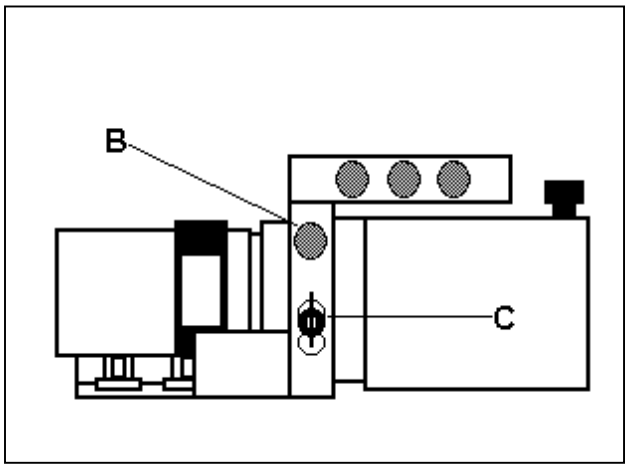


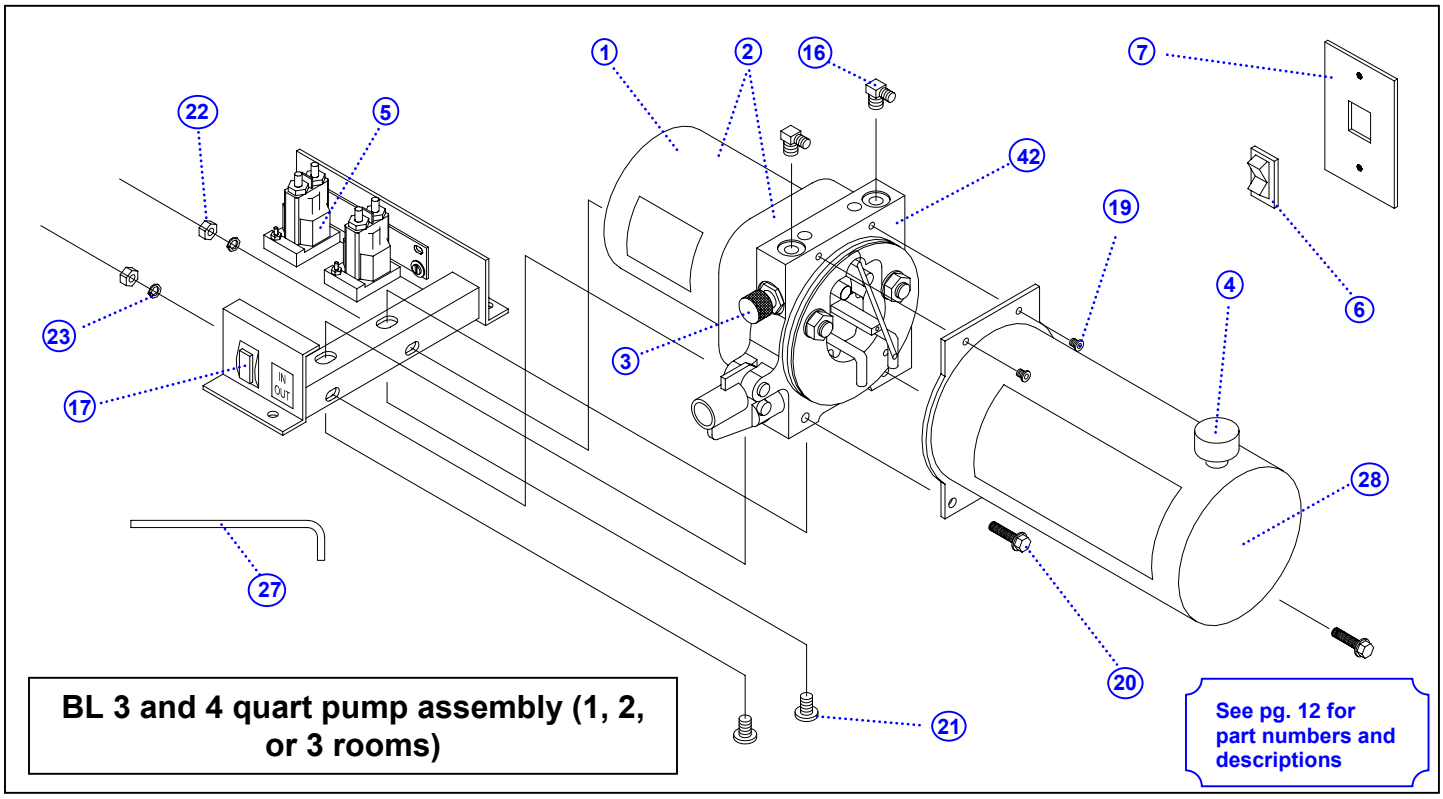
Figure 7



VEHICLES WITH OR WITHOUT SELECTOR MANIFOLD PUMP ASSEMBLIES (Fig. 7)

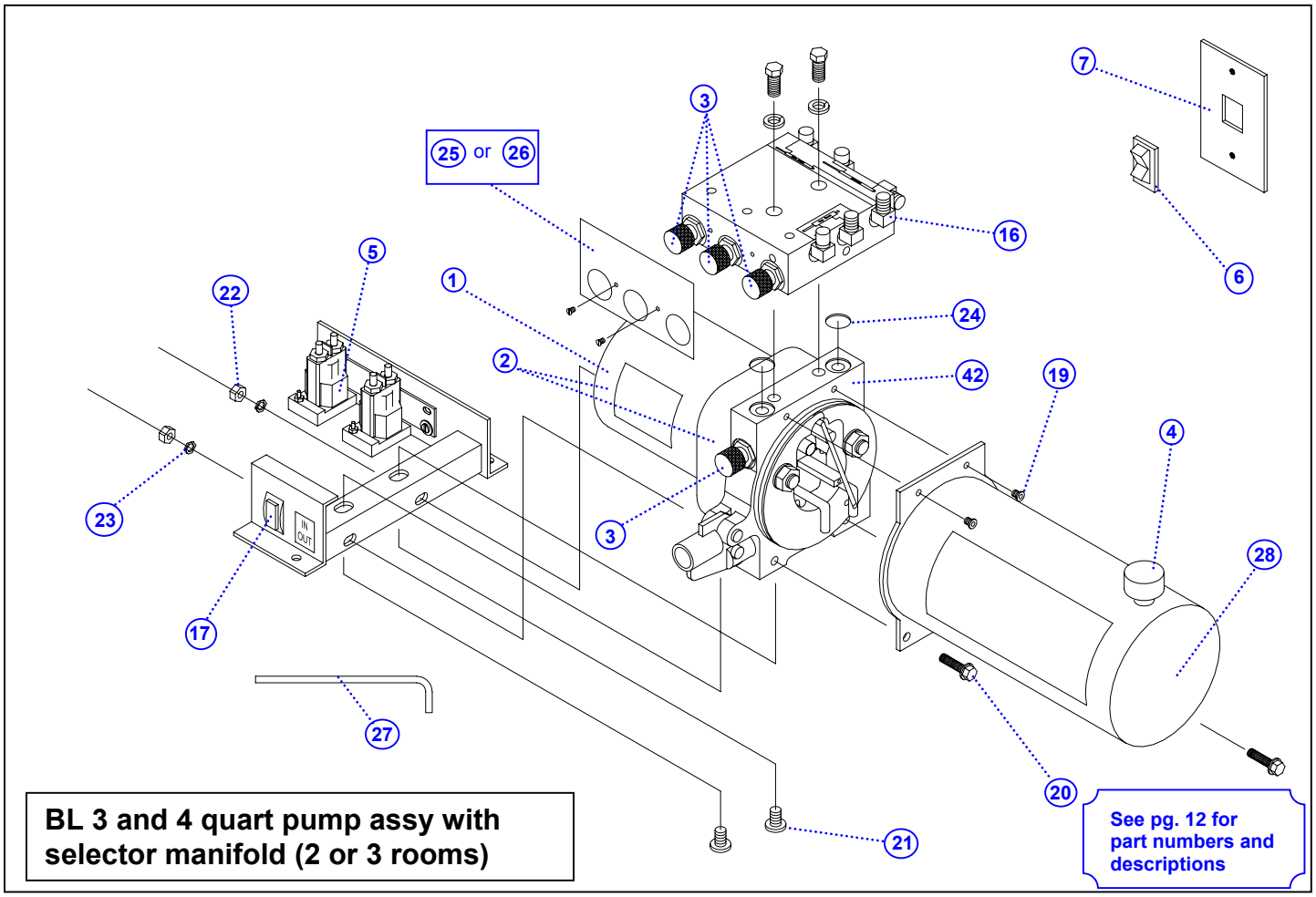
1. **Turn the silver knurled knob (B) on the front of the power unit 2 turns counter-clockwise.**
2. **Insert the pump handle into the receptacle (C) and pump the hand pump.**
3. **When room(s) are fully retracted, tightly close the silver knurled knob (B) clockwise.**

PARTS BREAKDOWNS



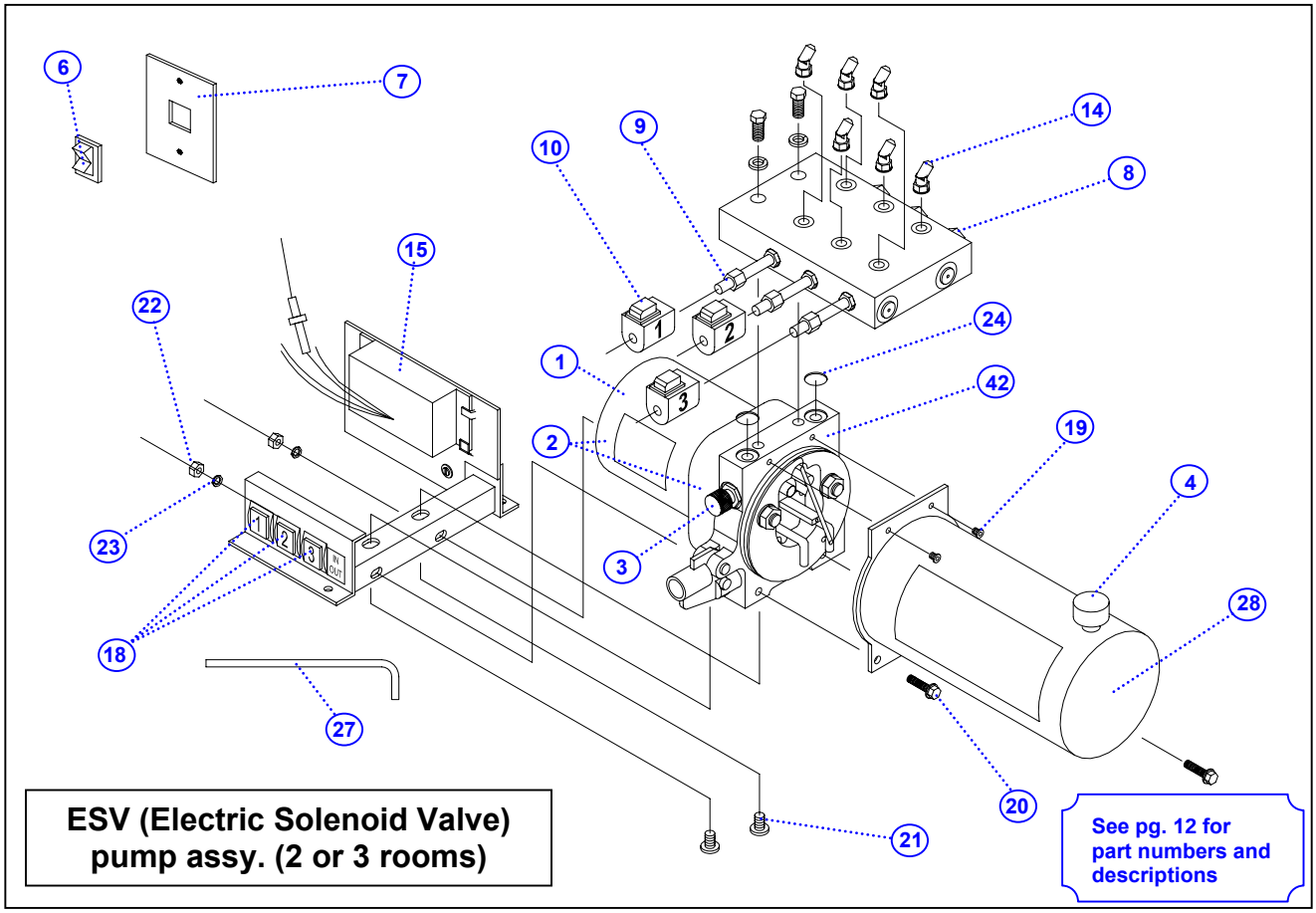
BL 3 and 4 quart pump assembly (1, 2, or 3 rooms)

See pg. 12 for part numbers and descriptions

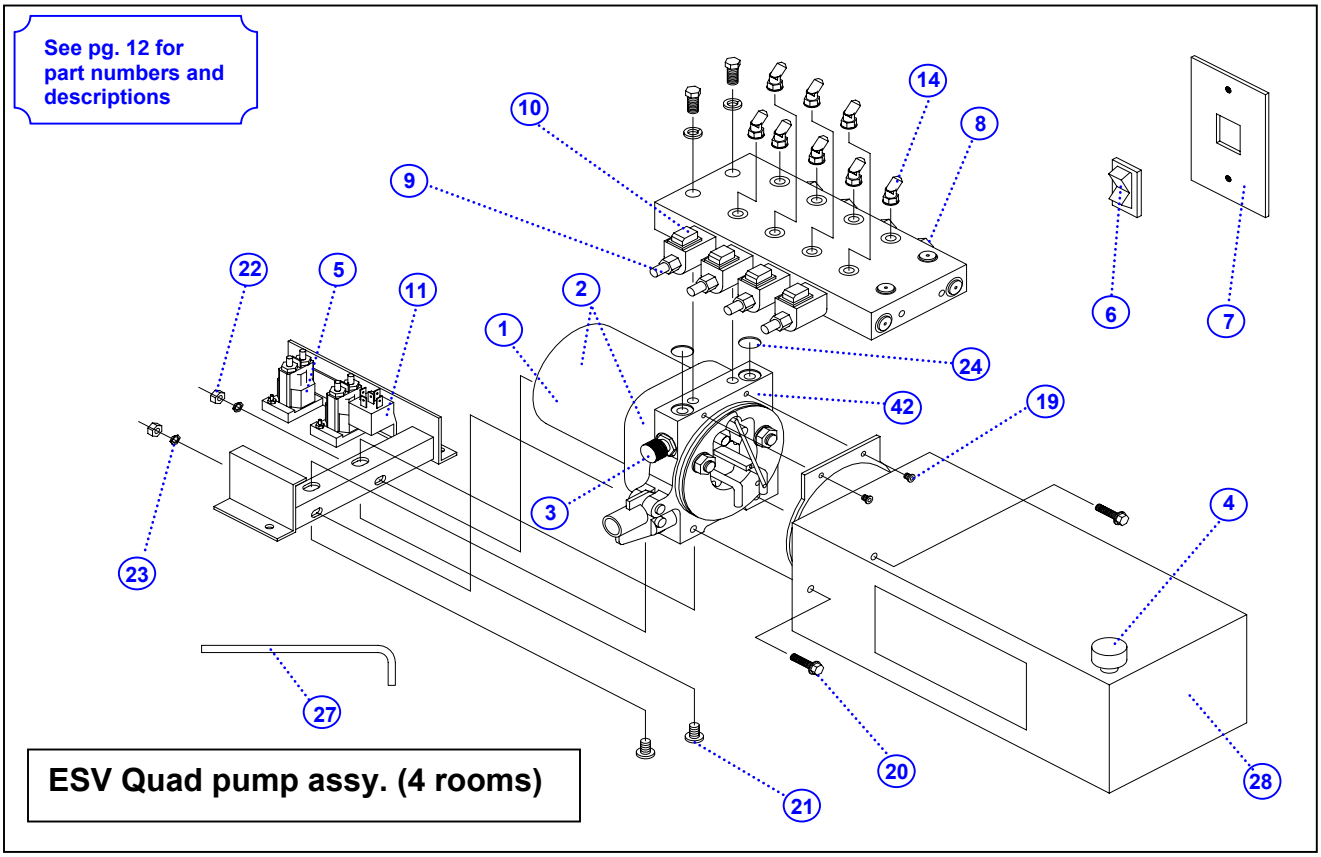


BL 3 and 4 quart pump assy with selector manifold (2 or 3 rooms)

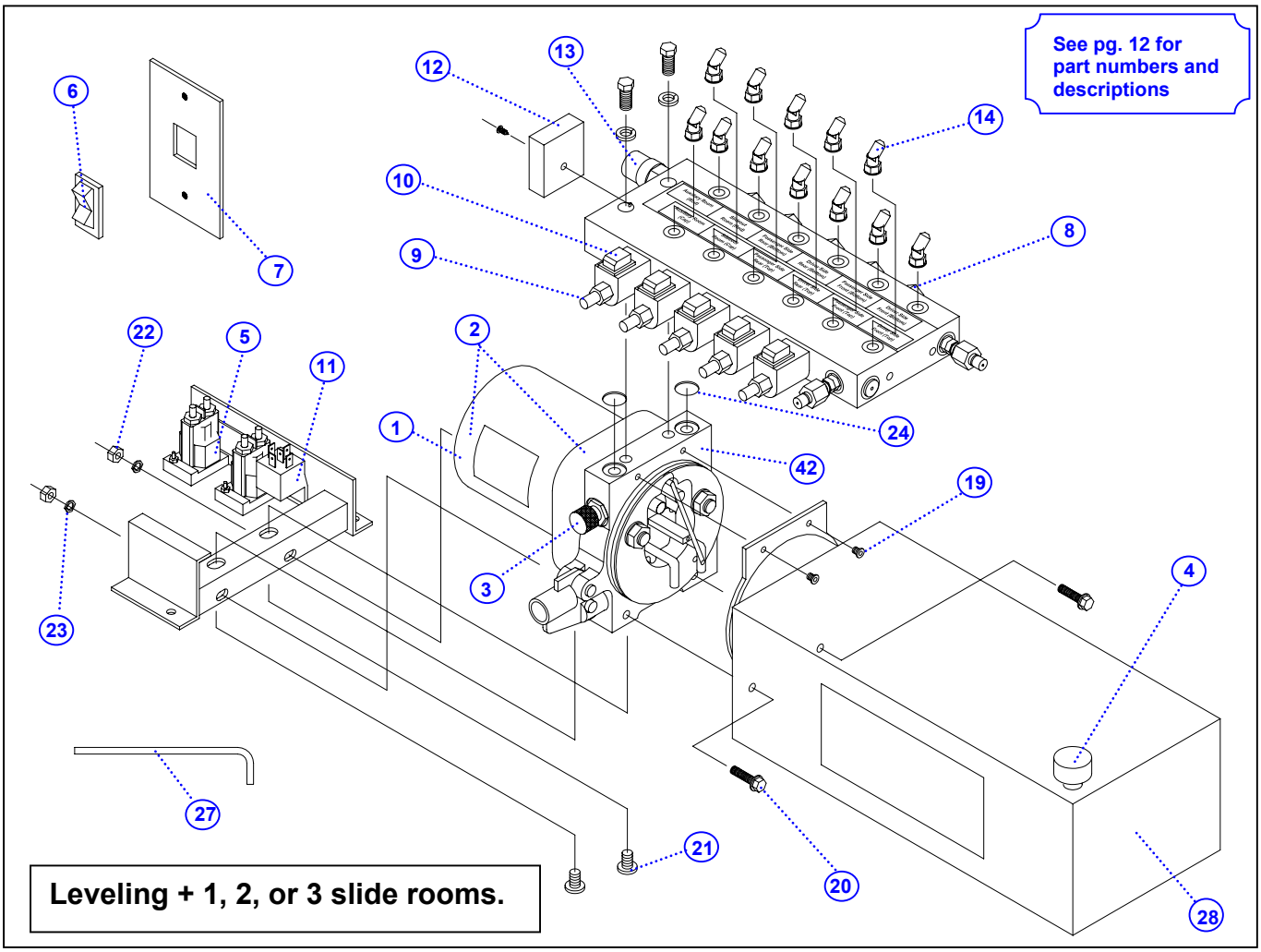
See pg. 12 for part numbers and descriptions



ESV (Electric Solenoid Valve) pump assy. (2 or 3 rooms)



ESV Quad pump assy. (4 rooms)


See pg. 12 for part numbers and descriptions
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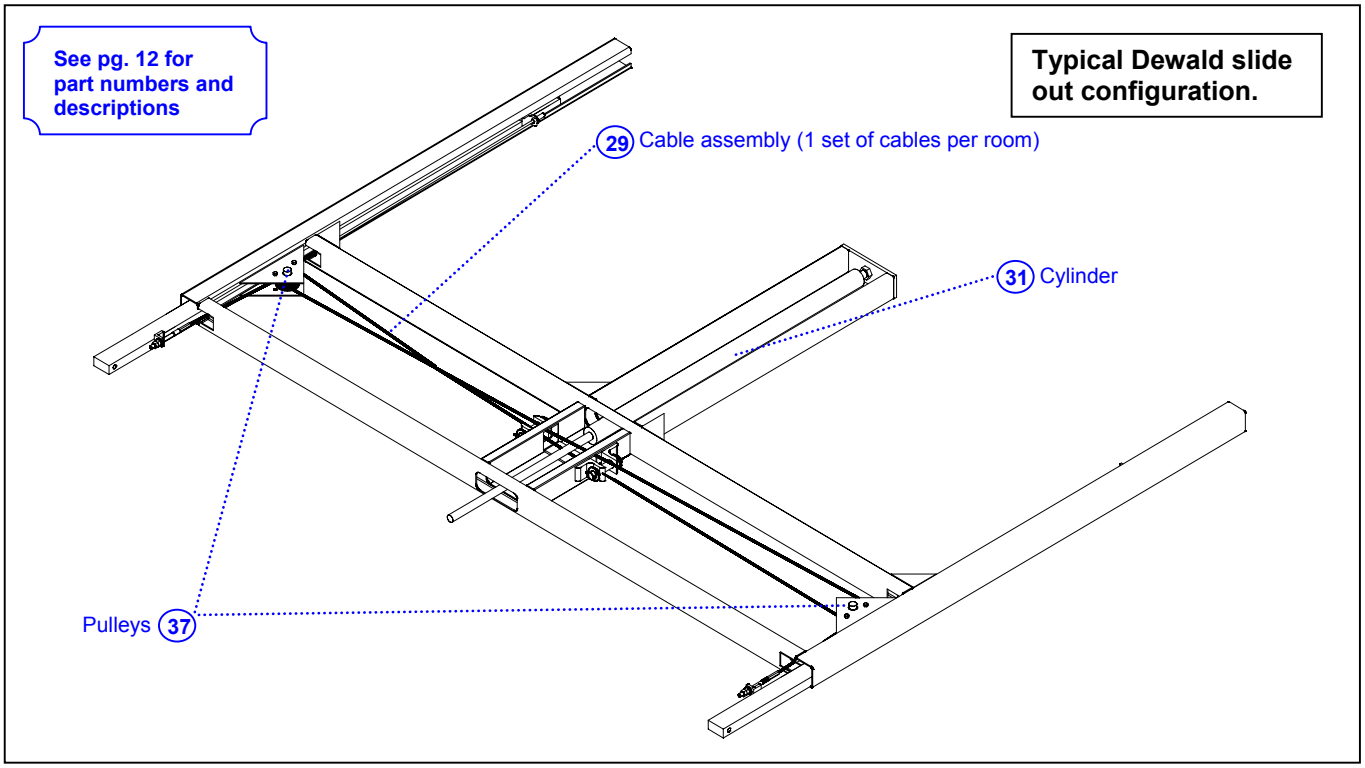
Leveling + 1, 2, or 3 slide rooms.

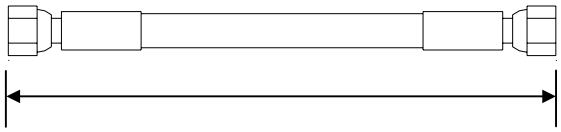

See pg. 12 for part numbers and descriptions
Typical Dewald slide out configuration.
29 Cable assembly (1 set of cables per room)
31 Cylinder
Pulleys 37

PUMP ASSEMBLIES

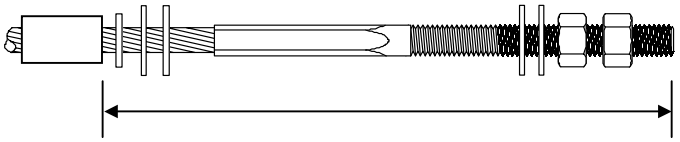
Slide out only pump assy's (Round reservoir tanks)		
Round reservoir tanks come in 3 and 4 quart sizes. The length of the 3 qt is 8.35" long and 4 qt are 12" long.		
D4DA		
PU10141	D4DA 3 qt	D4DA- Indicates that the assembly has no manual hand pump for emergency retraction of slide(s).
PU10166	D4DA 4 qt	
PU12038	D4DA 4 qt w/ T's	
PU12781	D4DA 3 qt w/ T's	
LW		
PU10813	3 qt LW, no switch	LW- Indicates that the assembly is built with a lead wire (LW) only. There is no switch at the pump, only inside the coach.
PU12525	3 qt LW w/ fuse & diode	
PU13638	3 qt LW w/ fuse	
BL		
PU10437	BL 3 qt	BL- Indicates that the pump is wired for operation at both locations (BL). There is a switch at the pump and in the coach.
PU10444	BL 4 qt	
PU11525	BL 3 qt w/ T's	
PU11526	BL 4 qt w/ T's	
PU12527	BL 3 qt w/ fuse & diode	
PU12967	BL 3 qt w/ fuse	
BL w/ double selector valves		
PU11667	BL 3 qt w/ double selector	Has manual valves at the pump that can be opened or closed to control room operation.
PU12157	BL 4 qt w/ double selector	
BL w/ triple selector valves		
PU12158	BL 4 qt w/ triple selector	Same as above
ESV (Electric Selector Valve)		
PU13222	BL 4 qt w/ triple ESV & 70 amp relay pack	ESV- Pump is built with 1 valve/coil assembly per room for individual, electrical control over each.
PU13623	BL w/ double ESV & 70 amp relay pack	
PU13624	LW w/ double ESV & 70 amp relay pack	

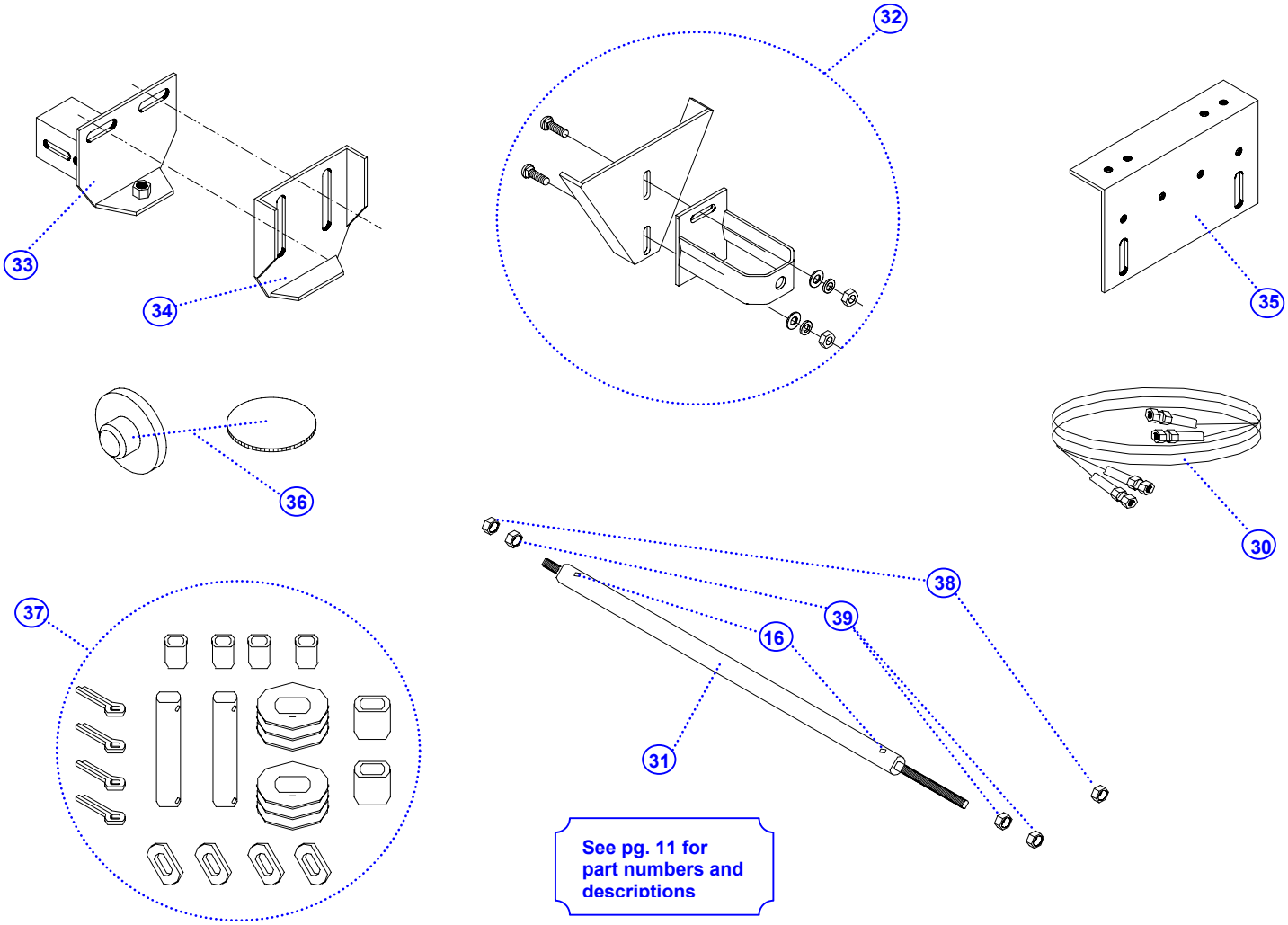
Leveling and slide room pump assy's (Square reservoir tanks)		
Square reservoir tanks come in 6 and 8 quart sizes. The length of the 6 qt tank is 12" and the 8 qt is 14" long.		
6 quart pump assemblies		w/ diode = Assembly is built with diode harness on solenoids w/ diode on coil = Assembly is built with diodes inline on room coils w/ fuse = Assembly is built with fuse in line on red power lead for wall switches
PU12463	6 qt leveling only (3 valve)	
PU12464	6 qt leveling + 1 (4 valve)	
PU12479	6 qt leveling + 2 (5 valve)	
PU12598	6 qt quad-slide pump (4 valve)	
PU13080	6 qt leveling + 1 w/ diode on coil (4 valve)	
PU13081	6 qt leveling + 2 w/ diode (5 valve)	
PU13631	6 qt leveling + 1 w/ fuse (4 valve)	
PU13635	6 qt leveling + 2 w/ fuse (5 valve)	
DMI pumps with PG controls		
500945	6 qt leveling + 2 w/ fuse (5 valve)	
500956	6 qt leveling + 1 w/ fuse (4 valve)	
8 quart pump assemblies		
PU13358	8 qt leveling + 2 w/ diode (5 valve)	
PU13632	8 qt leveling + 1 (4 valve)	
PU13633	8 qt leveling + 1 w/ diode on coil (4 valve)	
PU13634	8 qt leveling + 1 w/ fuse (4 valve)	
PU13636	8 qt leveling + 2 (5 valve)	
PU13637	8 qt leveling + 2 w/ fuse (5 valve)	
500951	8 qt leveling + 3 w/ fuse (6 valve)	

#30 ** Measure hose from these two points to determine the hose length in inches.



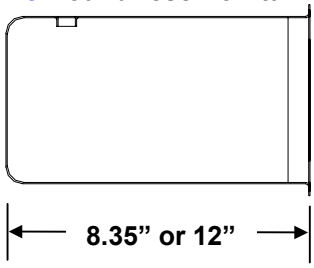
#29 ** Measure from these two points to determine cable length in inches. Also note the cable diameter (.25” or .188”).



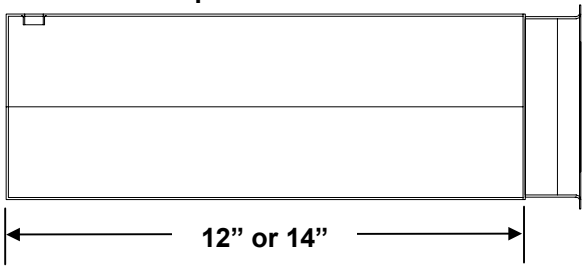


See pg. 11 for part numbers and descriptions

#28 Round reservoir tank



#28 Square reservoir tank



PARTS LIST

Item	Qty.	Part Number	Description
1	1	DN11027	12VDC motor
2	1	OK21500S	Pump/motor assembly **(pump is not available separately)**
3	*	DN14866	Hand pump cartridge valve assembly
4	1	PT10000	Breather cap
5	2	WZ10000	12VDC solenoid
6	*	IP10265	Rocker switch, white
7	*	IP10260	Rocker switch cover, white
8	*	DN13932	P.O. check valve
9	*	DN13933	Stem valve
10	*	DN13937	12VDC coil
11	1	BA30000	Cube relay
12	1	DN12649	Suppression module
13	1	DN12457	Pressure switch
14	*	DN12494	Hose fitting
15	1	DN13911	70 amp waterproof relay pack
16	*	WO11380	90 deg. Hose fitting
17	*	IP10400	3-pin pump switch
18	*	IP10450	6-pin pump switch
19	2	VF12300	Screw, socket cap, 10-32 x ¼"
20	2	VF10210	Bolt, hex head, ¼ -20 x 1 3/4"
21	2	VF10100	Screw, BHC, 3/8"-16 x ½"
22	2	VF10900	Nut, ¼-20 hex
23	2	VF10300	Lock washer, split
24	2	VA11000	O-ring, black, #016
25	1	DN11305	Faceplate, double selector manifold **(2 rooms)**
26	1	DN11306	Faceplate, triple selector manifold **(3 rooms)**
27	1	DN12560	Pump handle
28	1	DN12620	Reservoir tank, square, 12" **(6 quart)**
	1	DN12567	Reservoir tank, square, 14" **(8 quart)**
	1	QA30000	Reservoir tank, round, 8.75" **(3 quart)**
	1	QA13000	Reservoir tank, round, 12" **(4 quart)**
29	1	**	Synchronization cables **(each room has 1 set of sync cables)**
30	*	**	Hydraulic hoses
31	*	See pgs.13 & 14	Cylinder
32	*	DN11397	Bracket, mounting, cylinder
33	*	DN13252	Adjustment, horizontal, end condition assy.
34	*	DN12148	Adjustment, vertical, bracket
35	*	DN13841	Adjustment, vertical, bracket
36	*	DN11879	Wear pad, black 1.0" dia.
	*	DN10936	Wear pad, white 1.5" dia.
37	*	See pg. 12	Pulley assembly
38	*	IP10800	.75" nylock nut
	*	IP10750	1.12" nylock nut
39	*	IP10810	.75" jam nut
	*	IP10760	1.12" jam nut
40	1	EC10024	24" ball screw electric
41	1	DN11709	Air cylinder
42	1	600072S	Hand pump assembly
	1	800176	O-ring seal kit **(see page 23)**

*** Quantities vary by system.**

**** Cable and hose assemblies should be ordered by the length of the cable or hose in inches.**

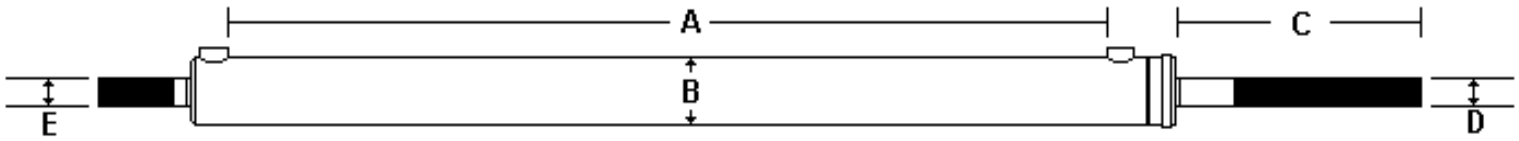
#37 PULLY REPLACEMENT KITS

Kit P/N	BOM	Qt.	Description
PL10342	600115	2	3" dia. double groove pulley assy
	CW10100	2	pulley shaft .75 x 3.75
	SY60913	2	spacer pulley pvc
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
PL10343	IP21004	2	3" dia. double groove pulley
	CW10100	2	pulley shaft .75 x 3.75
	DN10661	2	1-1/8" o.d. x 3/4"
	SY60915	2	3/4" x 1" sleeve
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
PL10344	IP21004	2	3" dia. double groove pulley
	DN10310	4	pulley shaft .75 x 2.75
	DN10280	4	pulley mounting br
	DN10661	2	1-1/8" o.d. x 3/4"
	SY60914	4	spacer pulley pvc
	VF11500	8	pin cotter 1/8 x 1
	VF12060	8	washer flat 3/4
PL10345	IP21004	2	3" dia. double groove pulley
	DN10310	2	pulley shaft .75 x 2.75
	DN10280	2	pulley mounting br
	DN10661	2	1-1/8" o.d. x 3/4"
	SY60914	2	spacer pulley pvc
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
PL10407	IP21005	6	5.5" dia. single groove pulley
	IP21105	6	bushing flange 1.1
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
PL10413	600116	6	3" dia. single groove pulley assy
	CW10100	4	pulley shaft .75 x 3.75
	SY60913	4	spacer pulley pvc
	SY60914	4	spacer pulley pvc
	VF11500	8	pin cotter 1/8 x 1
	VF12060	8	washer flat 3/4
PL10414	IP21005	6	5.5" dia. single groove pulley
	CW10100	4	pulley shaft .75 x 3.75
	IP21105	6	bushing flange 1.1
	SY60915	2	3/4" x 1" sleeve
	SY60916	2	3/4" x 1-1/2" slee
	VF11500	8	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
PL10521	600115	2	3" dia. double groove pulley assy
	CW10100	2	pulley shaft .75 x 3.75
	SY60913	4	spacer pulley pvc
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4

Kit P/N	BOM	Qt.	Description
PL10671	IP21004	2	3" dia. double groove pulley
	DN10662	2	1-1/8" o.d. x 3/4"
	VF11500	2	pin cotter 1/8 x 1
	VF12060	2	washer flat 3/4
PL10672	600115	2	3" dia. double groove pulley assy
	CW10100	2	pulley shaft .75 x 3.75
	DN10317	2	bracket pulley mtg
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
PL10753	600115	2	3" dia. double groove pulley assy
	SY60900	1	pulley shaft .75" x 6"
	VF11500	2	pin cotter 1/8 x 1
	VF12060	2	washer flat 3/4
PL10791	IP21004	2	3" dia. double groove pulley
	DN10661	2	1-1/8" o.d. x 3/4"
	DN10764	2	2" channel strap
	SY60915	2	3/4" x 1" sleeve
	VF11500	2	pin cotter 1/8 x 1
	VF12060	2	washer flat 3/4
PL11090	600114	2	2.25" dia. double groove pulley assy
	DN10310	2	pulley shaft .75 x 2.75
	DN10317	2	bracket pulley mtg
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
PL11102	600114	2	2.25" dia. double groove pulley assy
	CW10100	2	pulley shaft .75 x 3.75
	VF11500	4	pin cotter 1/8 x
	VF12060	4	washer flat 3/4
PL12130	600114	2	2.25" dia. double groove pulley assy
	CW10100	1	pulley shaft .75 x 3.75
	DN10310	2	pulley shaft .75 x 2.75
	SY60913	4	spacer pulley pvc
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4
IP60080	600114	2	2.25" dia. double groove pulley assy
	DN10310	2	pulley shaft .75 x 2.75
	DN10317	2	bracket pulley mtg
	VF11500	4	pin cotter 1/8 x 1
	VF12060	4	washer flat 3/4

Measurements must be taken while the cylinder is in the completely retracted state (Slide room closed)	Call Power Gear Tech Service at 800-334-4712 for price and availability of cylinder. Or fax to 574-256-6743
All dimensions must be within 1/16 of an inch	

Type: LWW



A: _____
B: _____
C: _____
D: _____
E: _____

Color: _____

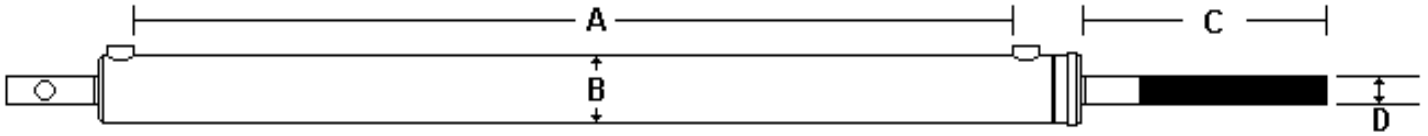
Vehicle Information:

Make: _____

Model: _____

Year: _____

Type: LDH



A: _____
B: _____
C: _____
D: _____

Color: _____

#31 HYDRAULIC CYLINDERS

LWW

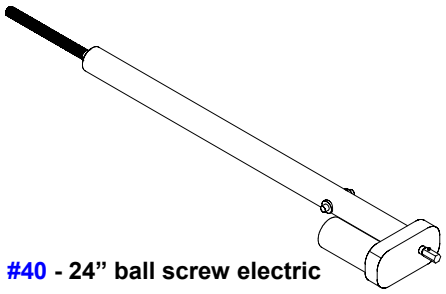
* = OBSOLETE

Part #	Description	Color	Physical Dimensions (inches)				
			A	B	C	D	E
130-1155	1.5 x 24 ext	Black	25.25	1.75	18.37	.75	.75
130-1156	1.5 x 24 non ext	Black	25.25	1.75	6.75	.75	.75
130-1157	1.5 x 41 ext	Black	42.25	1.75	18.37	.75	.75
130-1159	1.5 x 38 ext	Black	42.25	1.75	18.37	.75	.75
CW10320	2 x 24 non ext	Green	25.0	2.38	7.0	.75	.75
CW10323S	2 x 32 non ext	Yellow	32.75	2.38	7.0	.75	.75
CW10324S	2 x 32 non ext	Yellow	33.0	2.38	7.0	.75	.75
*CW10325S	2 x 38 non ext	Gray	39.0	2.38	7.0	.75	.75
CW10326S	2 x 38 ext	Gray	39.0	2.38	18.37	.75	.75
*CW10327	2 x 40 non ext	Green	41.0	2.38	7.0	.75	.75
CW10329	2 x 48 non ext	Yellow	49.0	2.38	7.0	.75	.75
*CW10400	2 x 40 (Dutchmen)	Black	36.75	2.38	7	.75	.75
CW10416	1.125 x 16.5 non ext	Black	17.38	1.38	2.75	.625	.625
*CW10420	1.5 x 20 non ext		23.5	1.875	3.5	.75	.75
*CW10500	2 x 44 non ext	Blue	45.0	2.38	7.0	.75	.75
*CW10520	1.5 x 20 non ext	Gray	23.12	1.75	7.25	.75	.75
CW10524S	1.5 x 24 non ext	Gray	27.5	1.75	7.0	.75	.75
*CW10534	1.5 x 34 non ext	Black	37.12	1.75	7.25	.625	.625
*CW10538	1.5 x 38 non ext		39.25	1.38	7.0	.75	.75
*CW10620	1.5 x 20 non ext		23.5	1.88	7.25	.625	.625
CW10638	1.5 x 38 non ext	Purple	39.25	1.75	6.75	.75	.75
CW10640	1.5 x 40 non ext	Green	41.25	1.75	7.0	.75	.75
CW10719	1.5 x 19 ext	Blue	20.25	1.75	18.62	.75	.75
CW10720	1.5 x 20 non ext	Gray	20.88	1.75	7.12	.75	.75
*CW10724	1.5 x 24 non ext	Green	25.25	1.75	7.0	.75	.75
CW10726	1.5 x 26 ext	Red	27.25	1.75	18.62	.75	.75
CW10729	1.5 x 29 non ext	Red	30.25	1.75	4.0	.75	.75
CW10732	1.5 x 32 ext	Yellow	33.25	1.75	18.62	.75	.75
*CW10738	1.5 x 38 ext	Gray	39.25	1.75	18.62	.75	.75
*CW10741	1.5 x 41 ext	Blue	42.25	1.75	18.62	.75	.75
*CW10820	1.5 x 20 non ext	Purple	20.88	1.75	3.5	.75	.75
*CW10824	1.5 x 24 ext	Green	25.25	1.75	18.62	.75	.75
DN11816	1.5 x 40 (Dutchmen)	Black	40.5	1.75	3.18	.75	
*DN11997S	1.5 x 38	Black	41.5	1.75	7.0	.625	.625
CW11836							

LDH

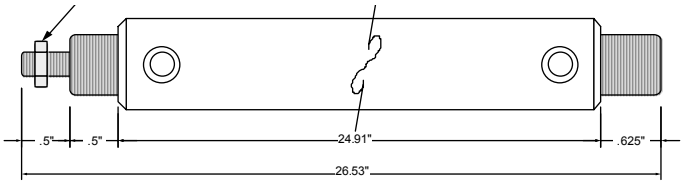
*CW10120	2 x 32		33.0	2.38	7.0	1.12	n/a
*CW10140	2 x 17	Black	18.0	2.38	7.0	1.12	n/a
CW10175S	2 x 24	Red	25.0	2.38	7.0	1.12	n/a
*CW10200	2 x 32	Yellow	33.0	2.38	7.0	1.12	n/a
CW10300S	2 x 38		39.0	2.38	7.0	1.12	n/a
CW10410	2 x 44	Gray	45.0	2.38	7.0	1.12	n/a

SPECIALTY CYLINDERS



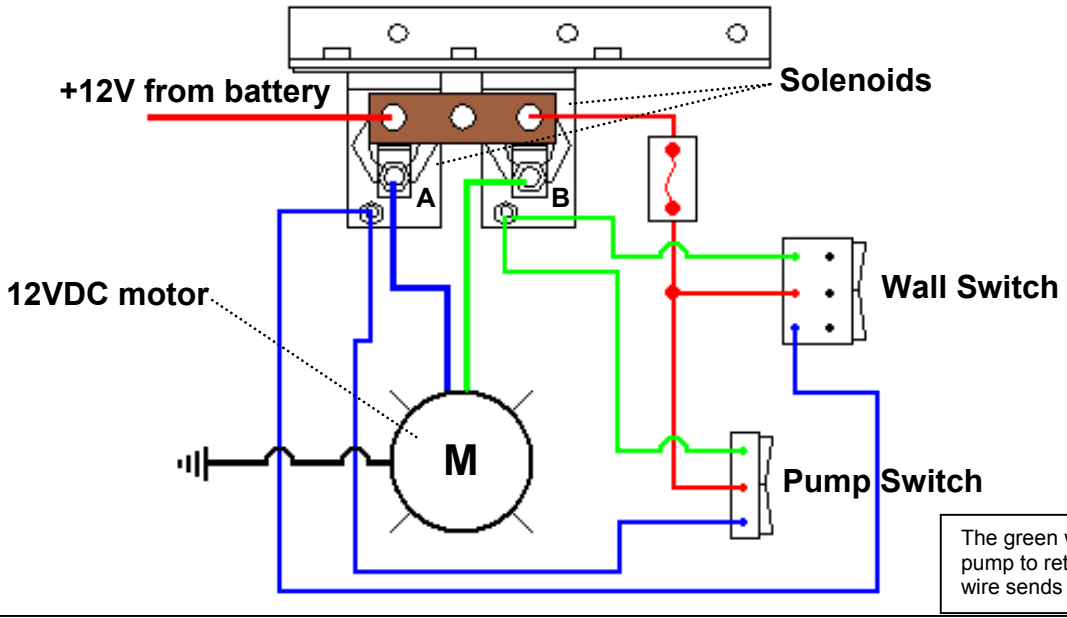
#40 - 24" ball screw electric

#41- Air cylinder



WIRING DIGRAMS

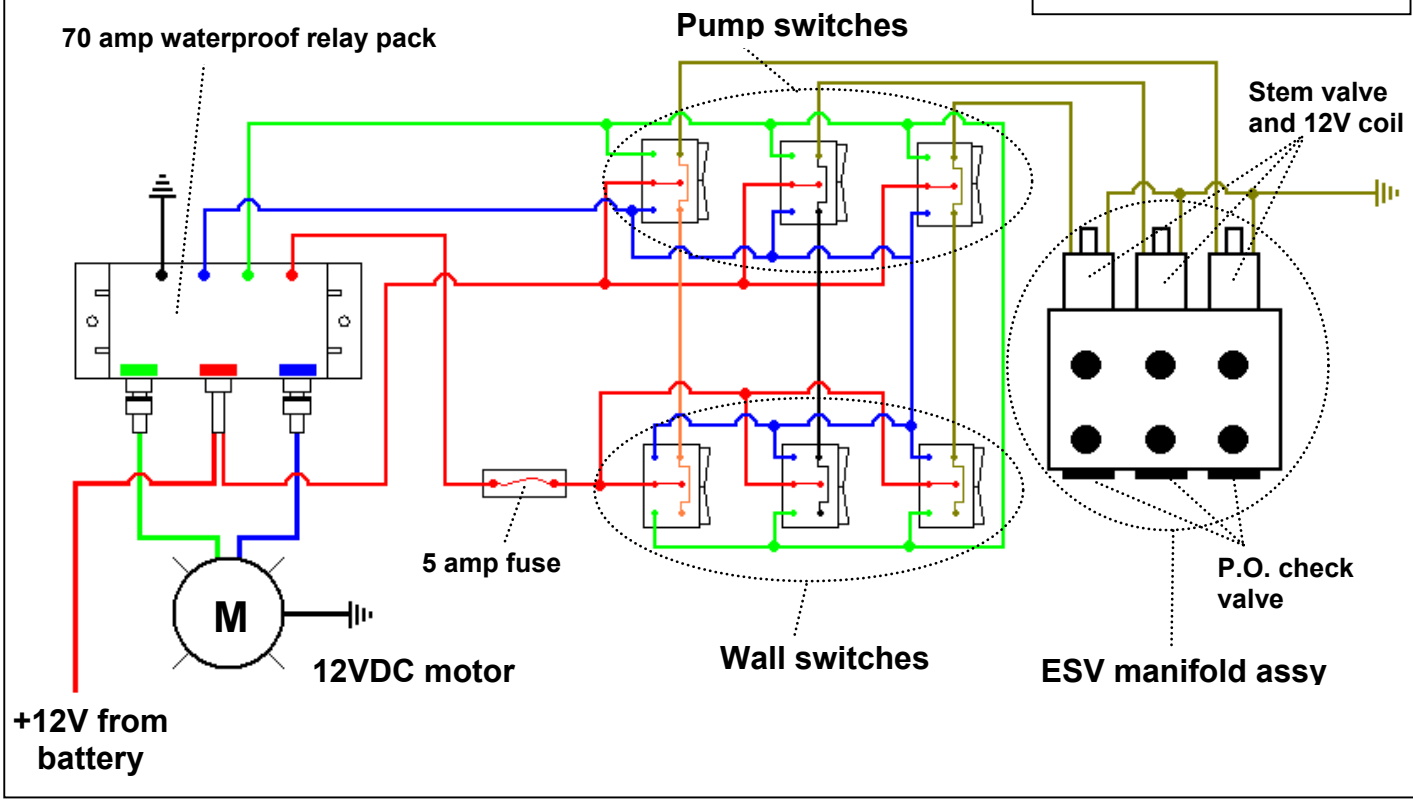
BL 3 and 4 quart, with or without selector manifold, with 1, 2 or 3 rooms

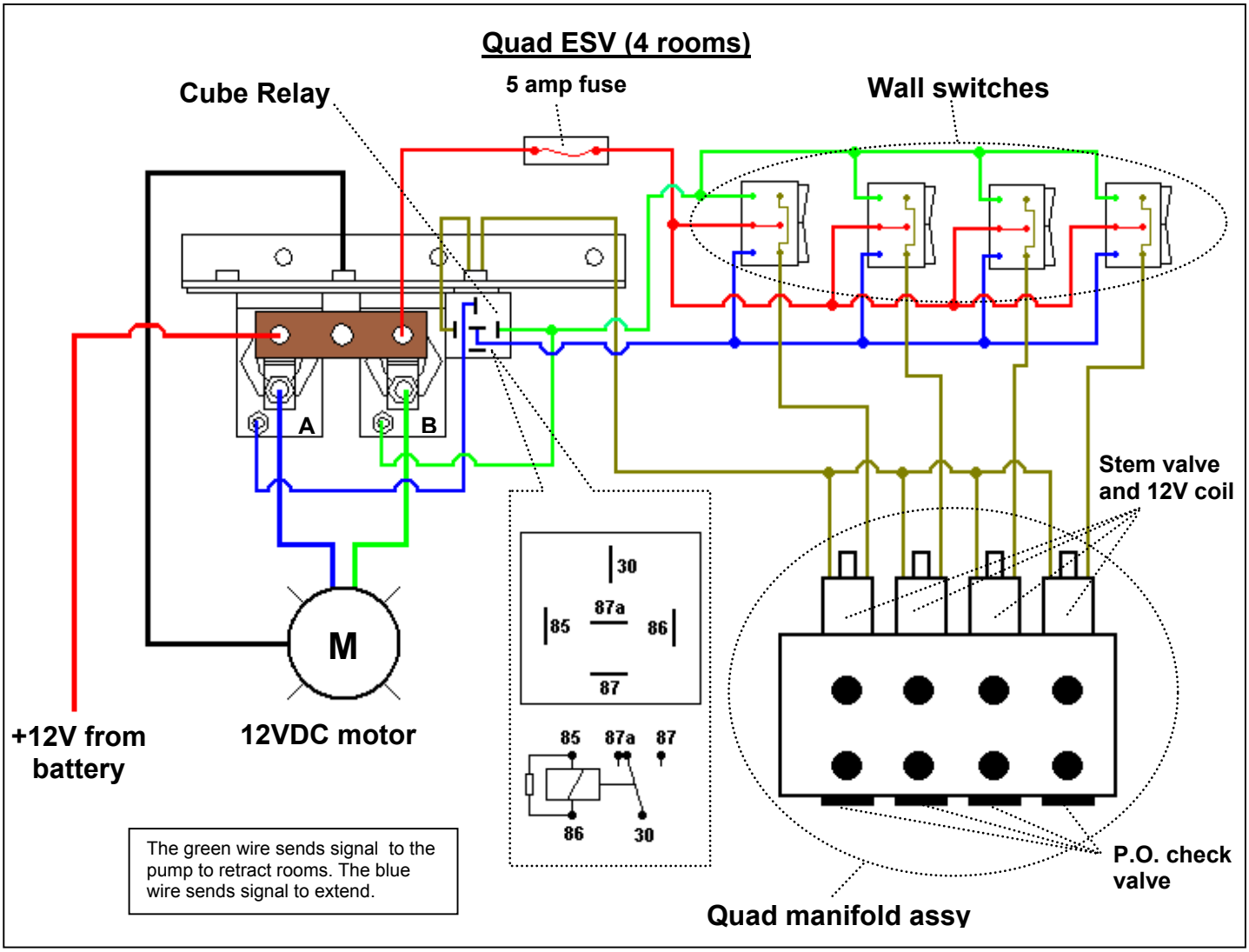


The green wire sends signal to the pump to retract rooms. The blue wire sends signal to extend.

Double or triple ESV (2 or 3 rooms)

The green wire sends signal to the pump to retract rooms. The blue wire sends signal to extend.

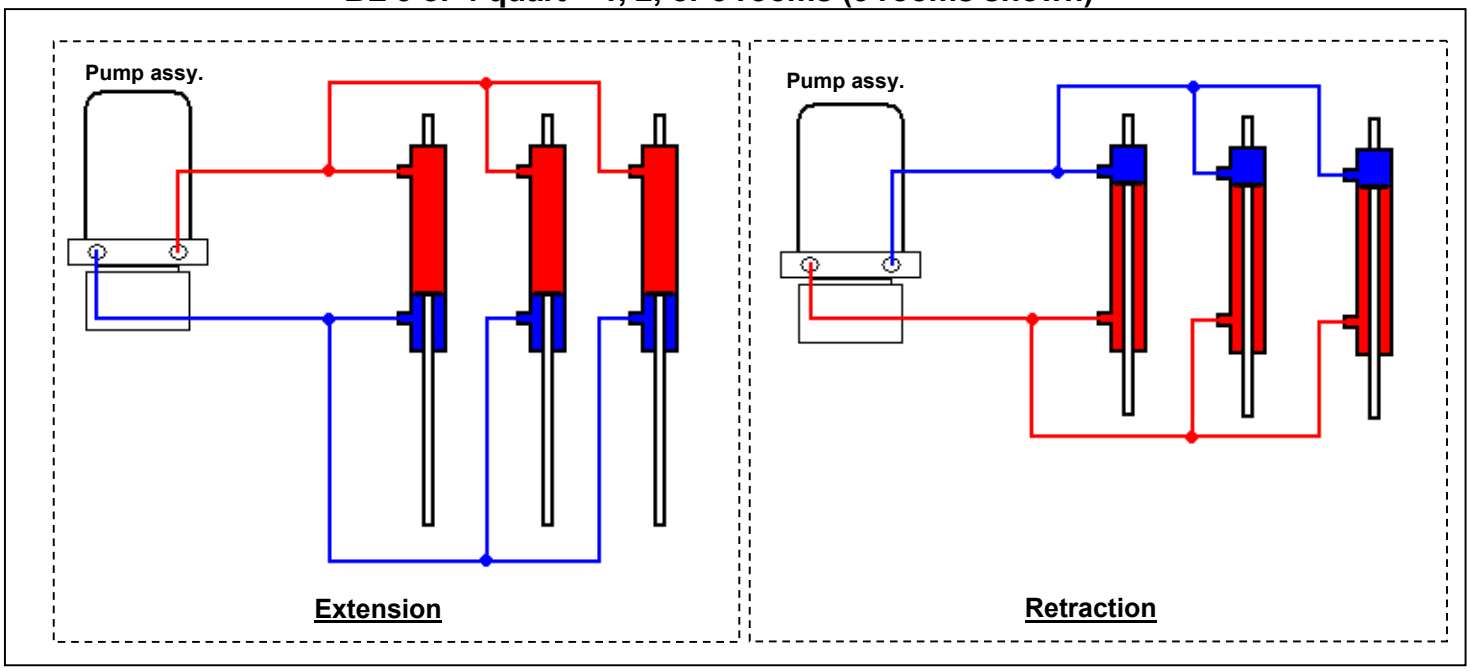




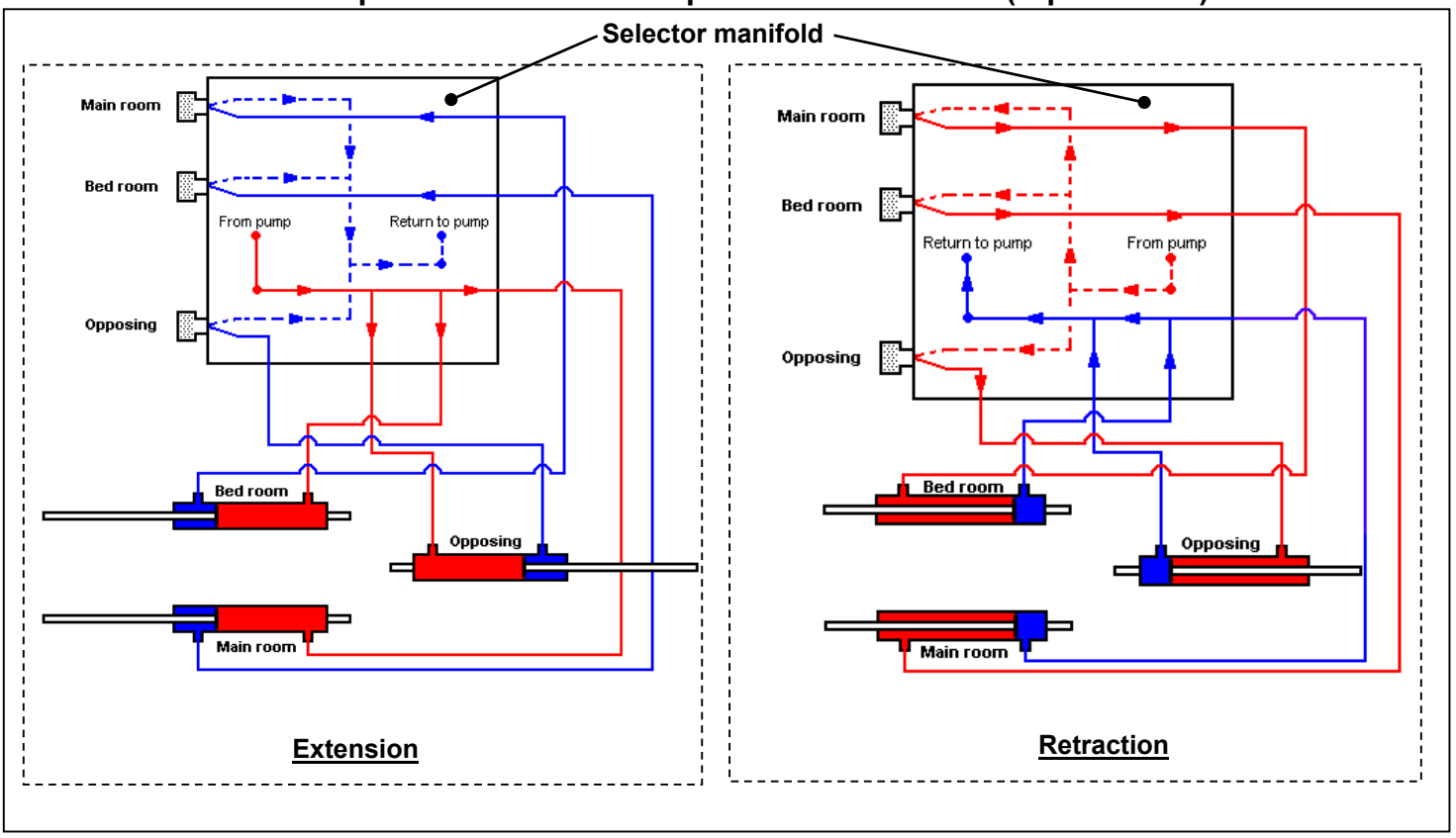
Wiring diagrams for leveling plus 1, 2, or 3 rooms can be found in the *Parts and Service Manual for Dewald Hydraulic Leveling Systems.*

HYDRAULIC DIAGRAMS

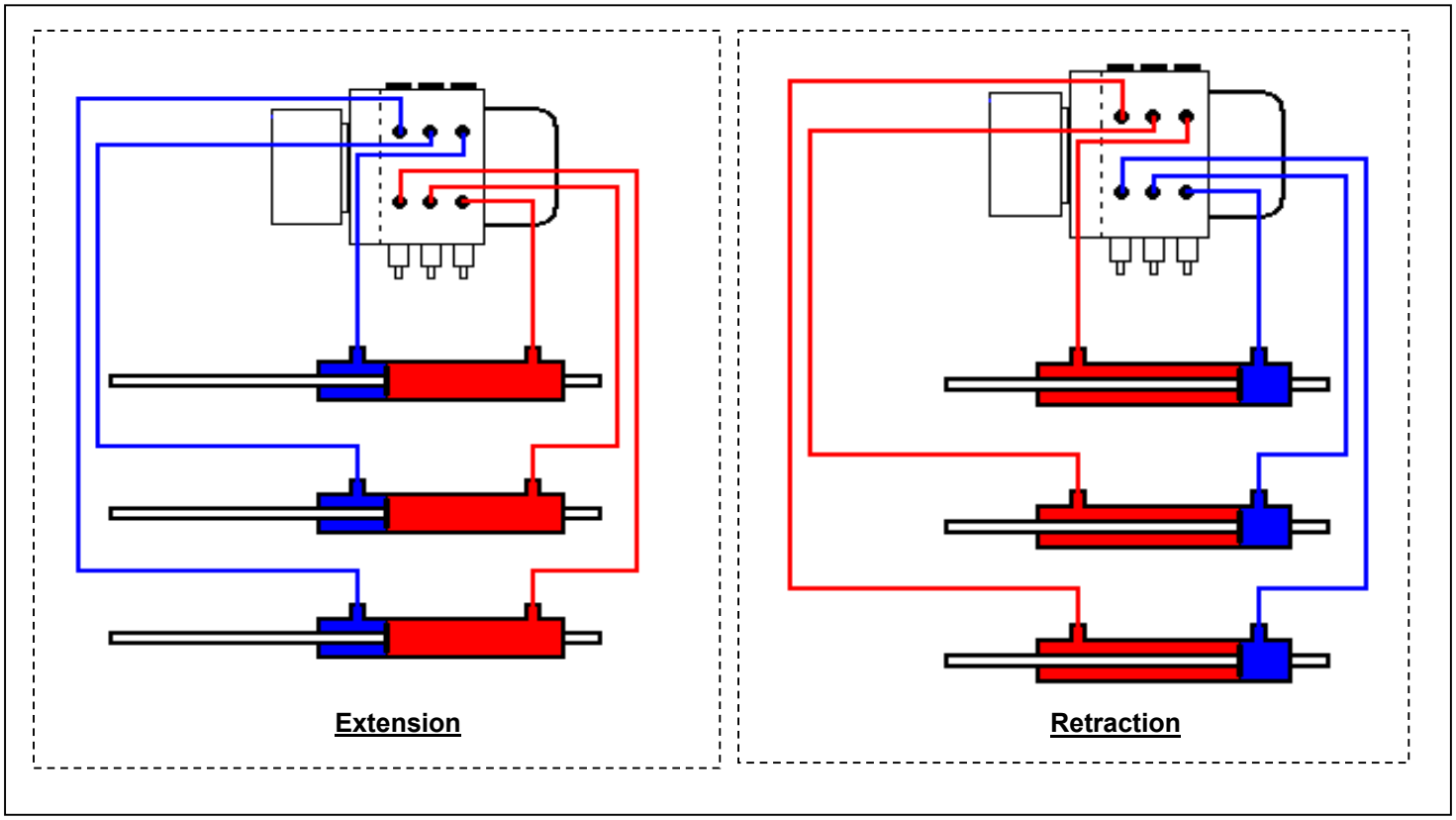
BL 3 or 4 quart – 1, 2, or 3 rooms (3 rooms shown)



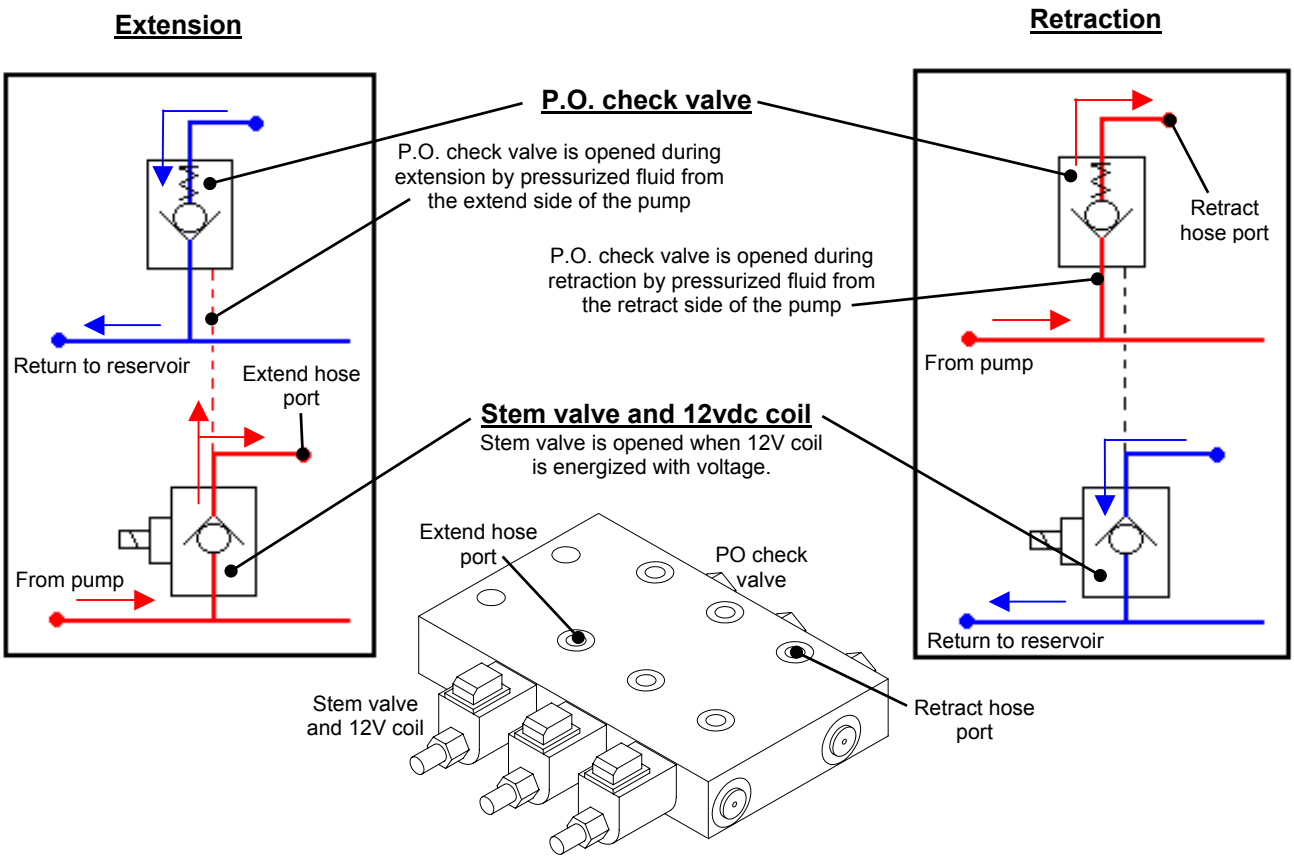
BL 3 or 4 quart with double or triple selector manifold (triple shown)



ESV (Electric Selector Valve) Triple ESV shown



ESV HYDRAULIC SCHEMATIC (triple ESV manifold shown)


Extension
Retraction
P.O. check valve
P.O. check valve is opened during extension by pressurized fluid from the extend side of the pump
P.O. check valve is opened during retraction by pressurized fluid from the retract side of the pump
Return to reservoir
Extend hose port
From pump
Retract hose port
From pump
Return to reservoir
Stem valve and 12vdc coil
Stem valve is opened when 12V coil is energized with voltage.
Extend hose port
PO check valve
Stem valve and 12V coil
Retract hose port

DIAGNOSING A DEWALD CYLINDER FOR INTERNAL LEAKAGE

The piston seal inside of a hydraulic cylinder can deteriorate over time due to normal wear, contaminated fluid, etc. If a cylinder is suspected to be leaking internally, then diagnose using the following procedure:

Check only one cylinder at a time.

1: Completely RETRACT suspected cylinder.

2: Remove the EXTEND hose at the cylinder. See page 18–19 for hydraulic diagrams to determine EXTEND and RETRACT hoses.

3: Push the RETRACT or IN switch for at least 10 seconds and note how much fluid is coming from the fitting. A small amount to trickle is normal, steady flow is not. The pump will groan but hold the switch for as long as 10 seconds. If internal piston seal is good, little to no fluid should be coming out of fitting.

4: If, at this point, the seal has proven to be faulty, then repair or replace cylinder. If seal appears to be holding pressure, continue with the diagnosis.

5: Re-attach the removed EXTEND hose.

6: Completely EXTEND suspected cylinder. If a vehicle lift is not accessible, it may be necessary to park the coach over a service pit to get leveling cylinder completely extended without lifting coach.

7: Remove the RETRACT hose at the cylinder.

8: Push the EXTEND or OUT switch for at least 10 seconds and note how much fluid is coming from the fitting. A small amount to trickle is normal, steady flow is not. The pump will groan but hold the switch for as long as 10 seconds. If internal piston seal is good, flow should be greatly reduced or stopped by then.

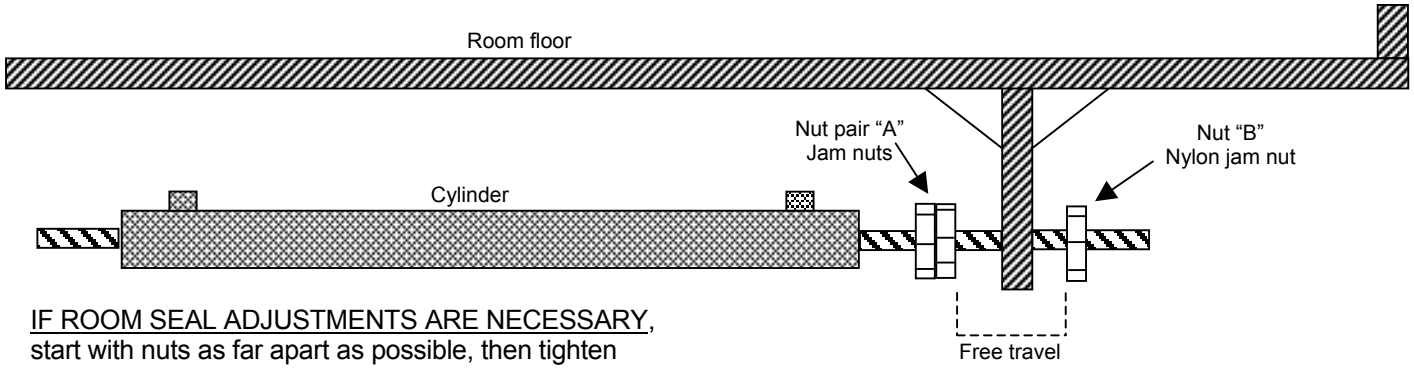
9: Do this with each cylinder, to determine a faulty cylinder.

Note 1: This process will greatly reduce your diagnostic times for the identification of potential bad cylinders.

Note 2: Cap or hold your finger over the pump fitting of the removed hose to avoid drawing air into the system.

ROOM SEAL AND CABLE ADJUSTMENT

In/out seal adjustment



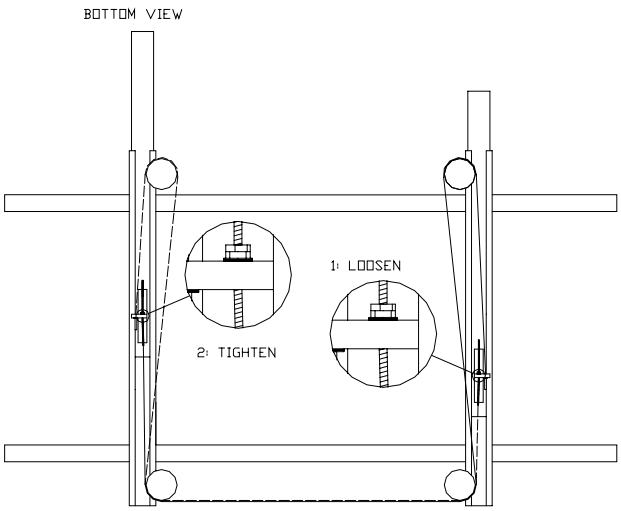
IF ROOM SEAL ADJUSTMENTS ARE NECESSARY, start with nuts as far apart as possible, then tighten gradually until seals are made.

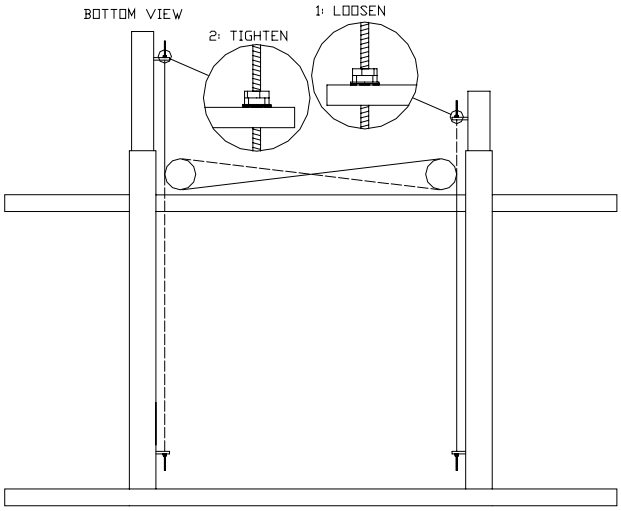
Jamb nuts are used to adjust tightness of room seals. Nut pair "A" in the OUT direction; nut "B" in the IN direction. The "free travel" space accounts for the difference between the cylinder stroke and the room travel.

Cable adjustment

The hydraulic slide out system does NOT use the cables to move the room, but rather to synchronize the room travel while the room is being moved. This synchronizing system keeps the room square as it slides in and out. If the wall of the slide for some reason is not parallel the outside wall of the R.V, you can adjust the cables as follows:

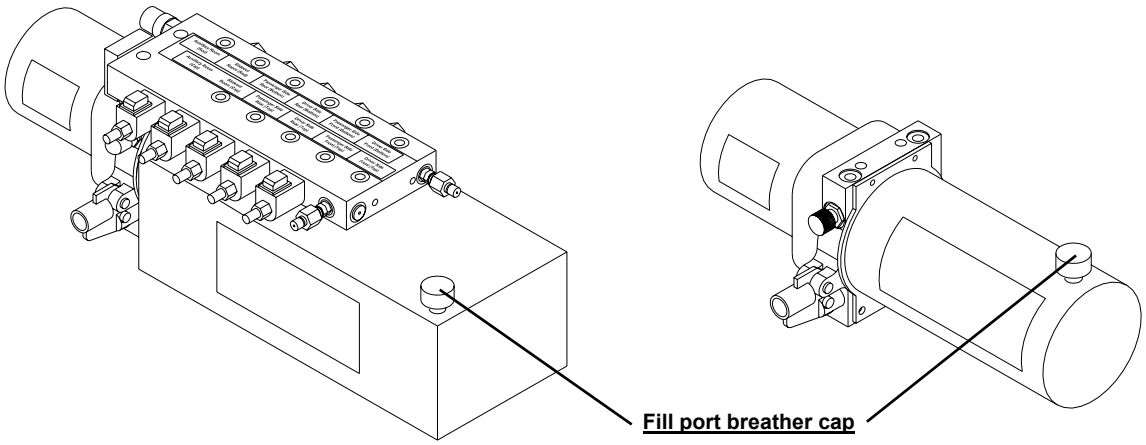
1. **Loosen cable nuts at side which is further IN (right side, as shown)**
2. **Tighten cable nuts at side which is further OUT (left side, as shown**





PREVENTIVE MAINTENANCE

1. Check the fluid level every month.
2. Check and/or fill the reservoir with the room(s) in the fully **retracted** position.
3. The fluid should be within 1/2 inch of the top of the reservoir tank.
4. Change fluid every 24 months.
5. Inspect and clean all hydraulic pump electrical connections every 12 months.
6. Keep slide mechanism free of debris.
7. If rooms are out for extended periods, it is recommended to spray exposed cylinder rods with a silicone lubricant every 5 to 7 days for protection.
8. **If your vehicle is located in a salty environment (within 60 miles of coastal areas), it is recommended to spray the cylinder rods every 2 to 3 days with a silicone lubricant.**



RECOMMENDED HYDRAULIC FLUIDS FOR YOUR DEWALD HYDRAULIC PUMP

The fluids listed here are acceptable to use in your pump assembly. Contact coach manufacturer or selling dealer for information about what specific fluid was installed in your system.

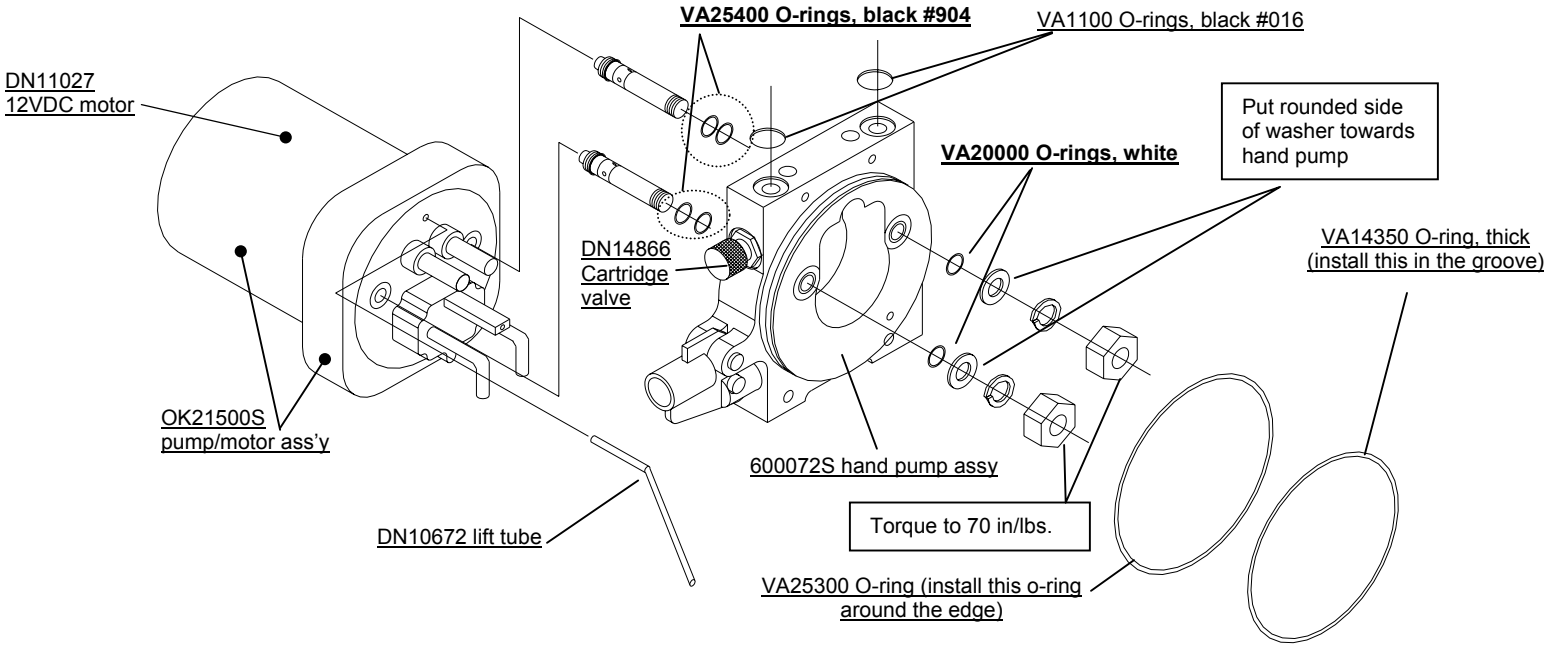
It is not recommended that hydraulic fluid and automatic transmission fluids be mixed in the reservoir.

In most applications, Type A automatic transmission fluid (ATF, Dexron III, etc.,) will work satisfactorily. Mercon V is also recommended as an alternative fluid for Dewald hydraulic systems.

If operating in cold temperatures (less than -10° F) the jacks may extend and retract slowly.
For cold weather operation, fluid specially formulated for low temperatures may be desirable. Mobil DTE 11M, Texaco Rando HDZ-15HVI, Kendall Hyden Glacial Blu, or any Mil. Spec. H5606 hydraulic fluids are recommended for cold weather operation.

Please consult factory before using any other fluids than those specified here.

INSTRUCTIONS FOR INSTALLING SEAL KIT 800176



Seal kit 800176 contains the following parts:

Qty.	Part #
2	VA11000
2	VA14350
2	VA20000
1	VA25300
4	VA25400

1. Return all rooms and leveling legs to the travel/storage position.
2. Disconnect the battery for the coach and pump system.
3. Drain the tank of oil with a siphon.
4. Mark each hose, and wire for their respective positions.
5. Remove each hose from the pump assy. and insert the ends into a bucket in case of leakage.
6. Remove the power leads to the pump motor (green, blue, and black).
7. Remove the pump from its mounting bracket. Take it to a clean, well-lighted workbench for disassembly.
8. Remove the tank; drain any remaining fluid and clean inside of tank with a lint free cloth.
9. Remove the hand pump from the assembly by removing the two nuts and lock-washers. Removal may be difficult with the inlet strainers in place. While pulling the hand pump off of the hollow tubes, pivot the hand pump down to clear the strainers after it clears the tubes.
10. Insert a long Allen wrench small enough to fit through the holes in the hollow tubes to check them to make sure they are tight (right hand thread).
11. Clean the components before re-assembly.
12. Install 2 new o-rings (VA25400) onto each tube (4 total), lubricate them with Dexron III.
13. Re-install the hand pump onto the pump assy.
14. Install one white o-ring (VA20000) onto each of the two tubes. Push the assembly together as much as possible to align the housing and tubes so the o-rings will be seated correctly.
15. Re-install the nuts onto the tubes and tighten to 70 inch/ pounds.
16. Install new o-rings (VA14350 and VA25300, 1 each) onto hand pump assembly and re-install the tank.
17. Re-install the pump components in reverse order of disassembly making sure to match the hose and wire markings.
18. Re-fill the tank with Dexron III fluid until ½" from the top of the tank.
19. Run the rooms and or leveling legs to full extension, wait 30 seconds and retract the rooms and leveling legs. Repeat this 4 times. This should completely purge air from the system.
20. Check the fluid level in the tank with all rooms and jacks retracted. Fill to proper level if necessary.
21. Test the system for proper operation, leaks, etc.

Note: Some systems do not require The two (2) VA25400 o-rings. One(1)extra VA14350 o-ring is included in the kit .

TROUBLESHOOTING

Note: Information regarding Dewald leveling parts, service, and troubleshooting can be found in the *Parts and Service Manual for Dewald Hydraulic Leveling Systems*.

Before starting to troubleshoot the system, check all harness connectors for proper connection. Also look for any loose or hanging wires and replace, tighten or connect as necessary according to the wiring diagrams contained in this manual.

Pump assembly key	
All	All pumps discussed in this manual
1	BL 3 or 4 quart assy.
2	BL 3 or 4 quart with selector manifold assy.
3	Double or triple ESV assy.
4	Quad ESV assy.

Troubleshooting any Direct Current (DC) electrical system should be done with caution and by a trained technician. Anyone unfamiliar with electrical systems should not attempt the troubleshooting procedures listed in this guide. Failure to follow these guidelines could result in personal injury or even death.

Room(s) will not extend, pump does not run

Pump assy.	Probable Cause	Corrective Action
All	Low or no voltage at pump assembly	Verify that the battery is fully charged and connected to the electrical system.
	5 amp fuse blown	Check 5 amp in-line fuse at pump assembly. Replace as necessary.
	Bad connection of motor ground wire at pump	Check grounding of black wire coming directly out of 12VDC motor at the pump assembly.
	Motor or pump has failed	Check for continuity between blue and black wires of 12VDC motor. If no continuity, replace motor. If continuity is found, then replace pump/motor assembly.
1, 2, 4	Solenoid “A” faulty	With any room extend switch pushed, small post of solenoid “A” should show 12V+.If so, then two large posts of solenoid “A” should have continuity across them. If no continuity, replace solenoid.
	No signal to pump assembly	Check for 12V+ at the pump assembly on the copper buss bar that ties solenoids “A” and “B” together. If power is found, jumper the two large posts on solenoid “A” to see if pump will run. If pump runs then continue trouble shooting system to isolate problem.
3	No signal to relay pack from wall switch(es)	The blue wire from the wall switches to the relay pack should show voltage when any room extend switch is pressed. If no voltage is found, then replace wall switch(es) as necessary.
	No signal from relay pack to 12VDC motor	With any wall switch pressed, the lug on the relay pack with the blue wire attached should show 12V+. If not, then replace relay pack.
4	No signal to solenoid “A” from cube relay	With any room extend switch pressed, terminal 87a of cube relay should show 12V+. If so, then terminal 30 should show 12V+. If no voltage at 30, then replace cube relay.

Room(s) will not extend, pump does run

Pump assy.	Probable Cause	Corrective Action
All	Low fluid level	Fill tank to proper level. See Preventive Maintenance and Recommended Fluids, pg 21.
	The silver, knurled knob on the hand pump is open	Knurled knob must be turned clockwise for normal operation.
3, 4	Faulty coil(s)	Check for continuity across the two yellow wires coming out of each of the coils. If no continuity, replace coil(s).
	Valve coils miswired	Check wiring diagrams.

Room extends, but erratically

Pump assy.	Probable Cause	Corrective Action
All	Room is out of synchronization	See “cable adjustment”, pg 20.
	Room seals or rails dry	Lubricate room seals and rails with silicone spray.
	Internal leak in slide room cylinder	See “diagnosing a Dewald cylinder for internal leakage” , pg 19.

Pump does not shut off when extend switch is released

Pump assy.	Probable Cause	Corrective Action
1, 2, 4	Solenoid “A” faulty	Remove blue wire from large top post of solenoid “A”. Test across the two large posts of solenoid “A” for continuity while the extend switch is pressed. If continuity remains after switch is released, then replace solenoid.
	Faulty switch	Remove blue wire from large top post of solenoid “A”. Check for voltage at small bottom post of solenoid “A” while the extend switch is pressed. If voltage remains after switch is released, then replace switch.
3	Relay pack faulty	Remove large blue wire from lug of relay pack. Test across that lug and the center lug (red wire) for continuity while the extend switch is pressed. If continuity remains after switch is released, then replace relay pack
	Faulty switch	Remove large blue wire from lug of relay pack. Check for voltage at blue wire in relay pack coming from switches while the extend switch is pressed. If voltage remains after switch is released, then replace switch.

Wrong room extends

Pump assy.	Probable Cause	Corrective Action
2	Wrong selector knob chosen	Chose correct selector knob.
	Faulty selector knob	Remove selector knob from manifold assembly and inspect the end for damage or contamination. Swap with a known good valve on manifold. If symptom swaps, then replace selector knob. If symptom does not swap, then continue troubleshooting to isolate defective component.
2, 3, 4	Cylinders plumbed to manifold incorrectly	Check plumbing of cylinders (See hydraulic diagrams, pg. 17)
3, 4	Stem valves are in manual override position	Turn slotted set screws at the end of the valves counterclockwise until they stop. If system has red knobs instead of set screws, turn knobs until they “snap” back into position (see pg 6).
	Coils and/or switches wired incorrectly	Check wiring of coils and switches according to the wiring diagrams contained in this manual.
	Faulty stem valve	Swap suspected stem valve with a known good stem valve on manifold. If symptom swaps, replace stem valve. If stem valve has red knurled knob on the end (old style), then valve and coil must be replaced.

Room “creeps” back in once extended

Pump assy.	Probable Cause	Corrective Action
All	A leak somewhere in system	Check all hoses, hose connections, pump assembly, etc for any visible fluid leak. Repair any found leaks as necessary.
	Air trapped in system	Verify that hose connection ports on cylinder are pointing as close to 12 o’clock as possible. Cycle room(s) to complete extension and retraction allowing system to rest 5 minutes in-between cycles. Do this 4 times. This should purge the air from the system.
	Bad piston seal in cylinder(s)	Test for internal cylinder seal leakage per instructions on pg 19.
	Bad o-ring seal between hand pump and pump assembly	Install o-ring kit #800176 as per pg 22.
	The silver, knurled knob on the hand pump is open	Knurled knob must be turned clockwise for normal operation.
1	Bad piston seal in cylinder(s)	On the BL 4 quart pump assembly where 2 or more rooms are teed together, a bad cylinder on one room can make another room creep back in. Be sure to check <u>all</u> cylinders for internal piston seal leakage on these systems.
3, 4	Stem valves are in manual override position	Turn slotted set screws at the end of the valves counterclockwise until they stop. If system has red knobs instead of set screws, turn knobs until they “snap” back into position (see pg 6).
	Faulty stem valve	Swap suspected stem valve with a known good stem valve on manifold. If symptom swaps, replace stem valve. If stem valve has red knurled knob on the end (old style), then valve and coil must be replaced.

Room(s) will not retract, pump does not run		
Pump assy.	**Probable Cause**	**Corrective Action**
All	Low or no voltage at pump assembly	Verify that the battery is fully charged and connected to the electrical system.
	5 amp fuse blown	Check 5 amp in-line fuse at pump assembly. Replace as necessary.
	Bad connection of motor ground wire at pump	Check grounding of black wire coming directly out of 12VDC motor at the pump assembly.
	Motor or pump has failed	Check for continuity between blue and black wires of 12VDC motor. If no continuity, replace motor. If continuity is found, then replace pump/motor assembly.
1, 2, 4	Solenoid “B” faulty	With any room retract switch pushed, small post of solenoid “B” should show 12V+.If so, then two large posts of solenoid “B” should have continuity across them. If no continuity, replace solenoid.
	No signal to pump assembly	Check for 12V+ at the pump assembly on the copper buss bar that ties solenoids “A” and “B” together. If power is found, jumper the two large posts on solenoid “B” to see if pump will run. If pump runs then continue trouble shooting system to isolate problem.
3	No signal to relay pack from wall switch(es)	The green wire from the wall switches to the relay pack should show voltage when any room retract switch is pressed. If no voltage is found, then replace wall switch(es) as necessary.
	No signal from relay pack to 12VDC motor	With any wall switch pressed, the lug on the relay pack with the green wire attached should show 12V+. If not, then replace relay pack.
4	No signal to solenoid “B” from cube relay	With any room retract switch pressed, terminal 87a of cube relay should show 12V+. If so, then terminal 30 should show 12V+. If no voltage at 30, then replace cube relay.

Room(s) will not retract, pump does run		
Pump assy.	**Probable Cause**	**Corrective Action**
All	Low fluid level	Fill tank to proper level. See Preventive Maintenance and Recommended Fluids, pg 21.
	System overfilled with fluid	Drain tank to proper level. See Preventive Maintenance and Recommended Fluids, pg 21.
3, 4	Faulty coil(s)	Check for continuity across the two yellow wires coming out of each of the coils. If no continuity, replace coil(s).
	Valve coils miswired	Check wiring diagrams.

Room retracts, but erratically		
Pump assy.	**Probable Cause**	**Corrective Action**
All	Room is out of synchronization	See “cable adjustment”, pg 20.
	Room seals or rails dry	Lubricate room seals and rails with silicone spray.
	Internal leak in slide room cylinder	Check cylinder for internal piston seal leakage. See “diagnosing a Dewald cylinder for internal leakage” , pg 19.

Pump does not shut off when retract switch is released		
Pump assy.	**Probable Cause**	**Corrective Action**
1, 2, 4	Solenoid “B” faulty	Remove green wire from large top post of solenoid “B”. Test across the two large posts of solenoid “B” for continuity while the retract switch is pressed. If continuity remains after switch is released, then replace solenoid.
	Faulty switch	Remove green wire from large top post of solenoid “B”. Check for voltage at small bottom post of solenoid “B” while the retract switch is pressed. If voltage remains after switch is released, then replace switch.
3	Relay pack faulty	Remove large green wire from lug of relay pack. Test across that lug and the center lug (red wire) for continuity while the retract switch is pressed. If continuity remains after switch is released, then replace relay pack.
	Faulty switch	Remove large green wire from lug of relay pack. Check for voltage at green wire in relay pack coming from switches while the retract switch is pressed. If voltage remains after switch is released, then replace switch.

Wrong room retracts

Pump assy.	Probable Cause	Corrective Action
2	Wrong selector knob chosen	Chose correct selector knob.
	Faulty selector knob	Remove selector knob from manifold assembly and inspect the end for damage or contamination. Swap with a known good valve on manifold. If symptom swaps, then replace selector knob. If symptom does not swap, then continue troubleshooting to isolate defective component.
2, 3, 4	Cylinders plumbed to manifold incorrectly	Check plumbing of cylinders (See hydraulic diagrams, pg. 17)
3, 4	Stem valves are in manual override position	Turn slotted set screws at the end of the valves counterclockwise until they stop. If system has red knobs instead of set screws, turn knobs until they "snap" back into position (see pg 6).
	Coils and/or switches wired incorrectly	Check wiring of coils and switches according to the wiring diagrams contained in this manual.
	Faulty stem valve	Swap suspected stem valve with a known good stem valve on manifold. If symptom swaps, replace stem valve. If stem valve has red knurled knob on the end (old style), then valve and coil must be replaced.

Room "creeps" back out once retracted

Pump assy.	Probable Cause	Corrective Action
All	A leak somewhere in system	Check all hoses, hose connections, pump assembly, etc for any visible fluid leak. Repair any found leaks as necessary.
	Air trapped in system	Verify that hose connection ports on cylinder are pointing as close to 12 o'clock as possible. Cycle room(s) to complete extension and retraction allowing system to rest 5 minutes in-between cycles. Do this 4 times. This should purge the air from the system.
	Bad piston seal in cylinder(s)	Test for internal cylinder seal leakage per instructions on pg 19.
	Bad o-ring seal between hand pump and pump assembly	Install o-ring kit #800176 as per pg 22.
	The silver, knurled knob on the hand pump is open	Knurled knob must be turned clockwise for normal operation.
1	Bad piston seal in cylinder(s)	On the BL 4 quart pump assembly where 2 or more rooms are teed together, a bad cylinder on one room can make another room creep back out. Be sure to check <u>all</u> cylinders for internal piston seal leakage on these systems.
3, 4	Stem valves are in manual override position	Turn slotted set screws at the end of the valves counterclockwise until they stop. If system has red knobs instead of set screws, turn knobs until they "snap" back into position (see pg 6).
	Faulty stem valve	Swap suspected stem valve with a known good stem valve on manifold. If symptom swaps, replace stem valve. If stem valve has red knurled knob on the end (old style), then valve and coil must be replaced.

Locations of breakers, fuses, fuse panels, etc. are coach specific. Consult your coach owner's manual or the coach manufacture for locations of these components.

Power Gear Technical Service:
800-334-4712
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- Living or travel expenses.
- Overtime labor.
- Failures created by improper installation of the product's slideout system or slideout room to include final adjustments made at the plant for proper room extension/retraction; sealing interface between slideout rooms and side walls; synchronization of inner rails; or improper wiring or ground problems.
- Failures created by improper installation of leveling systems, including final adjustments made at the plant, or low fluid level, wiring or ground problems.
- Replacement of normal maintenance items.

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Power Gear
1217 E. 7th Street
Mishawaka, IN 46544
www.powergearus.com